

# Defiant<sup>®</sup>

## Non-Catalytic / Catalytic Woodburning Stove

Model 1975CE

Homeowner's  
Installation and  
Operating Manual

For use in Europe



**SAFETY NOTICE: IF THIS APPLIANCE IS NOT PROPERLY INSTALLED, OPERATED AND MAINTAINED, A HOUSE FIRE MAY RESULT. TO REDUCE THE RISK OF FIRE, FOLLOW THE INSTALLATION INSTRUCTIONS. FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN PROPERTY DAMAGE, BODILY INJURY OR EVEN DEATH. CONTACT LOCAL BUILDING OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.**

**Do Not Discard This Manual: Retain for Future Use**

# Welcome

Congratulations on your choice of a Vermont Castings Defiant stove. With this purchase you have made a commitment to make the hearth a place of warmth, beauty and comfort in your home. At MHSC, we share that joy and appreciation for the hearth. We assure you that your cast-iron Vermont Castings stove has been made with the utmost care and will provide you with many years of service.

As you become acquainted with your new stove, you will find that its appearance is matched by its functionality, due to cast iron's unique ability to absorb and radiate heat.

Also, MHSC products are among the cleanest-burning wood stoves and fireplaces available today. As an owner of a Vermont Castings stove, you make a strong statement for pollution-free energy. However, clean burning depends on both the manufacturer and the operator. Please read this manual carefully to understand how to properly operate and maintain your stove.

At MHSC, we are equally committed to your satisfaction as a customer. That is why we maintain an exclusive network of the finest dealers in the industry. Our dealers are chosen for their expertise and dedication to customer service. They are factory-trained and knowledgeable about every MHSC product. Feel free to contact your Authorized Vermont Castings Dealer anytime you have a particular question about your stove or its performance.

This manual contains valuable instructions on the installation and operation of your Vermont Castings Defiant. It also contains useful information on maintenance. Please read the manual thoroughly and keep it as a reference.

Sincerely,

*All of Us at MHSC*

This manual describes the installation, operation, and maintenance of the Vermont Castings Defiant Model 1975CE Non-Catalytic / Catalytic wood burning heater. This heater meets the U.S. Environmental Protection Agency's emission limits for wood heaters sold on or after July 1, 1990. Under specific test conditions this heater has been shown to heat 9.6kW (33,000 Btu/hr).

The Defiant Model #1975CE has been tested to current standards. The test standards are ANSI/UL-1482 and ANSI/UL-737 for the United States, and EN13240:2001 + A2:2004 for Europe. The Defiant is listed for burning wood only. Do not burn other fuels.

We recommend that you hire a professional installer to install your stove, or to advise you on the installation should you attempt to install it yourself.

Please read this entire manual before you install and use your new stove. Failure to follow instructions may result in property damage, bodily injury, or even death.

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## Installation Accessories

- Warming Shelf
  - #0210 Classic Black
  - #0211 Biscuit
  - #0213 Ebony
  - #0214 Bordeaux
  - #0217 Brown Majolica
- #3265\* Outside Air Kit
- #3180 Outside Air Adapter
- #1907 Firescreen
- FK26 Fan Kit
- #3190 Connector Pipe Heat Shield

A line of porcelain enamel stove pipe is available in Biscuit, Bordeaux, Ebony, Brown Majolica colors.

\*If you order #3265, you must also need #3180.

**Save These Instructions for Future Reference**

## Specifications

### Defiant Model 1975CE

Nominal heat out put ..... 9.6 kW (33,000 BTU/hr)<sup>1</sup>  
 Minimum flue draught ..... 12 Pa (0.048" WG)  
 Mean flue gas temp ..... 316° C (601° F)  
 Efficiency (Space heating) with Catalyst ..... 77.5%  
 Efficiency (Space heating) w/o Catalyst ..... 73.9%  
 Area heated ..... Up to 223 sq. m (2400 sq. ft.)<sup>1</sup>  
 Fuel size/type ..... 635 mm (25") wood  
 Fuel capacity ..... 32 kg (70 lbs)  
 Flue mass gas flow ..... 8.4 g/s  
 CO Emissions (@ 13% O<sub>2</sub>) ..... Catalyst .08, noncat .48  
 Loading ..... Front and top  
 Chimney connector:  
     for 8" flue collar ..... 203 mm (8") diameter  
     for 6" flue collar ..... 152 mm (6") diameter  
 Chimney flue size:  
     for 8" flue collar ..... 203 mm (8") minimum  
     for 6" flue collar ..... 152 mm (6") minimum  
 Flue exit position ..... Reversible, top or rear  
 Primary air ..... Manually set, thermostatically maintained  
 Secondary air ..... Fixed, self-regulating  
 Ash handling system ..... Removable ash pan  
 Glass panel ..... High-temperature ceramic  
 Weight ..... 235 kg (518 lbs.)

Width (leg-to-leg) ..... 822 mm (32")  
 Depth (leg-to-leg) ..... 483 mm (19")  
 Height to top of flue collar ..... 760 mm (30")

1. This value can vary depending on how the stove is operated, the type and moisture content of the fuel used, as well as the design, construction and climatic location of your home. Figures shown are based on nominal fuel consumption obtained under laboratory conditions and on average efficiencies.

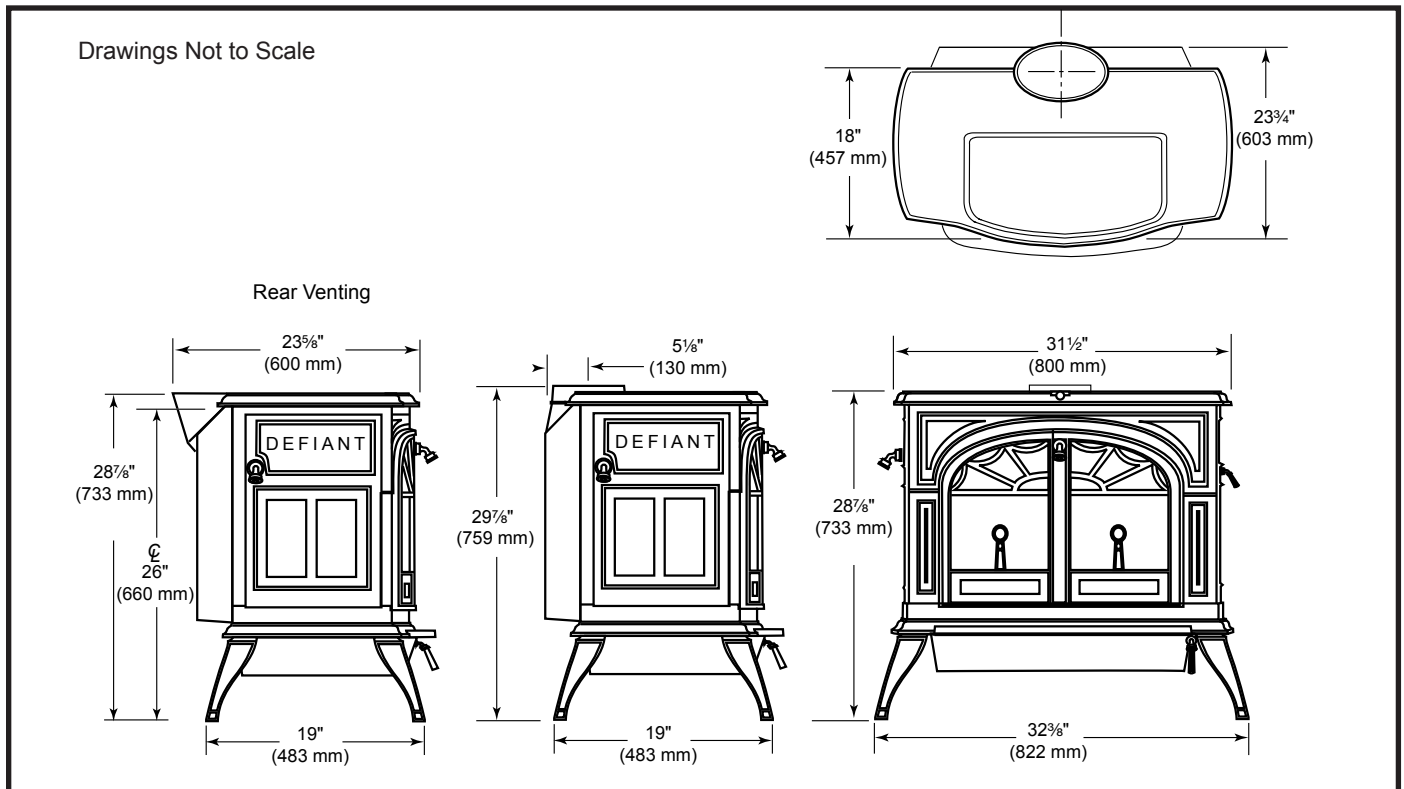


Fig. 1 Defiant 1975CE dimensions.

## Installation

**SAFETY NOTICE: IF YOUR DEFIANT IS NOT PROPERLY INSTALLED, A HOUSE FIRE MAY RESULT. TO REDUCE THE RISK OF FIRE, FOLLOW THE INSTALLATION INSTRUCTIONS. CONTACT LOCAL BUILDING OR FIRE OFFICIALS ABOUT RESTRICTIONS AND INSTALLATION INSPECTION REQUIREMENTS IN YOUR AREA.**

Before you begin an installation, be sure that:

- Your stove and chimney connector will be far enough from combustible materials to meet all clearance requirements.
- The floor protector is large enough and is constructed properly to meet all requirements.
- You have all necessary permits from local authorities.

Your local building official is the final authority for approving your installation as safe and determining that it meets local and state codes.

The metal label permanently attached to the back of every Vermont Castings' stove indicates the stove has been tested to current standards. The test standard is EN13240:2001 + A2:2004 for Europe. Clearance and installation information also is printed on the label. When the stove is installed according to the information both on the label and in this manual, local authorities in most cases will accept the label as evidence that the installation meets codes and can be approved.

However, codes vary in different countries. Before starting the installation, review your plans with the local building authority. Your local dealer can provide any additional information needed.

**IMPORTANT: FAILURE TO FOLLOW THESE INSTALLATION INSTRUCTIONS MAY RESULT IN A DANGEROUS SITUATION, INCLUDING A CHIMNEY OR HOUSE FIRE. FOLLOW ALL INSTRUCTIONS EXACTLY, AND DO NOT ALLOW MAKESHIFT COMPROMISES TO ENDANGER PROPERTY AND PERSONAL SAFETY.**

All local regulations, including those referring to national and European standards, need to be complied with when installing this stove.

### Outside Air

In some modern, super-insulated homes, there is inadequate air for combustion because of insufficient air infiltration into the building. Such air enters a home through unsealed cracks and openings. Exhaust fans for kitchen or bath can compete with the stove for available air and compound the problem.

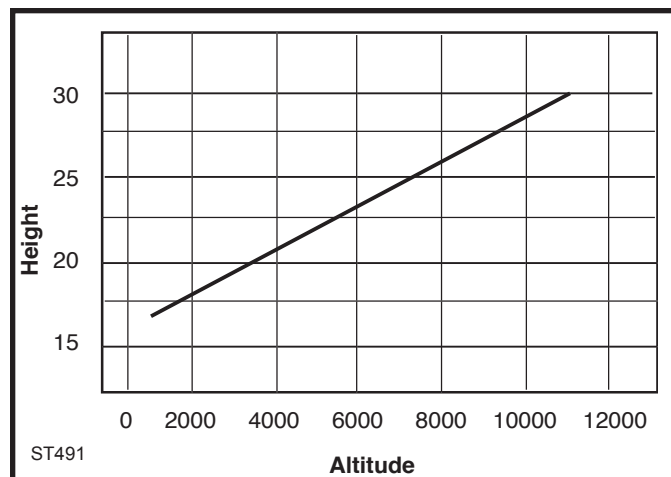
When poor draft is caused by a low infiltration rate, opening a ground floor window on the windward side of the house and in the vicinity of the stove will usually alleviate the problem.

For appliances with power outputs above 5 kW, a permanently open air vent is required by Section 2 of Document J. Air inlet grilles should be positioned so that they will not be blocked. Refer to local and national codes for recommended configurations.

Pressure variations within the house do not affect a stove equipped with an outside air supply, and improved stove performance often results. An Outside Air Adapter Kit for the Defiant is available from your local Vermont Castings dealer.

### Chimney Height

Altitude affects chimney performance. When using a 8" flue collar on the Defiant, refer to Figure 2 for suggested chimney heights at various altitudes. Chimney height should be measured from the flue collar to the top of the chimney. The recommended minimum chimney height is 4.9 m (16').



**Fig. 2** Chimney height requirements for Defiant when equipped with a 203 mm (8") chimney.

## What Kind of Chimney to Use

You must connect the Defiant to a code-approved masonry chimney with a flue liner, to a relined masonry chimney that meets local codes, or to a prefabricated metal chimney. (Fig. 3) The chimney and chimney connector must be in good condition and kept clean.

If you use an existing masonry chimney, it must be inspected to ensure it is in a safe condition before the stove is installed. Your local professional chimney sweep, building inspector, or fire department official will be able to inspect the chimney or provide a referral to someone who can.

The flue and chimney design must meet requirement J2, Part J of the building regulations 2000 (Combustion Appliances and Fuel Storage Systems).

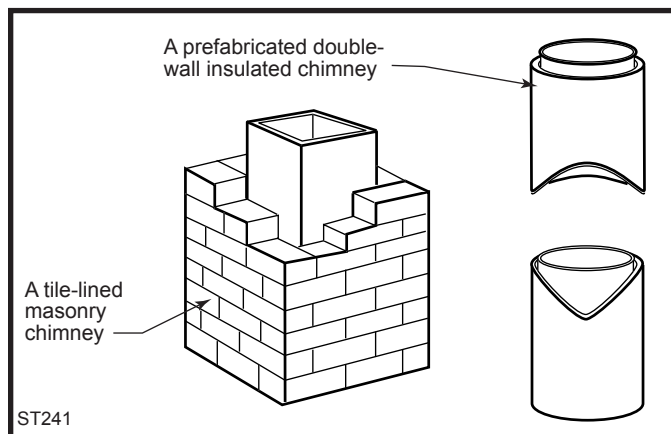


Fig. 3 Approved chimney types.

## Masonry Chimneys

An inspection of the chimney must confirm that it has a lining. Do not use an unlined chimney. The chimney should have no cracks, loose mortar, other signs of deterioration, and blockage. Repair any defects before the chimney is used with your stove.

Unused openings in an existing masonry chimney must be sealed with masonry to the thickness of the chimney wall, and the chimney liner should be repaired. Openings sealed with pie plates or wallpaper are a hazard and should be sealed with mortar or refractory cement. In the event of a chimney fire, flames and smoke may be forced out of these unused thimbles.

The chimney should be thoroughly cleaned before use.

A newly-built masonry chimney must conform to the standards of your local building code or, in the absence of a local code, to a recognized national code. Masonry chimneys must be lined, either with code-approved masonry or pre-cast refractory tiles, stainless steel pipe, or a code-approved, "poured-in-place" liner. The chimney's clean-out door must seal tightly.

## Prefabricated Chimneys

These should be an internal diameter of 203 mm (8") and be of the twin wall insulated construction that has been approved for solid fuel use (e.g. Rite Vent ICS of ICID Lite Chimney Systems). Diameters over 200 mm (8") are not recommended due to the large cross-section causing excessive cooling of the flue gases.

**DO NOT CONNECT THIS UNIT TO A CHIMNEY FLUE SERVING ANOTHER APPLIANCE.**

## Chimney Size

A Defiant with a 203 mm (8") flue collar is approved for venting into a masonry chimney with a nominal flue size of 203 x 203 mm (8" x 8") or 203 x 305 mm (8" x 12"), and into a round flue with nominal flue size of 203 mm (8"). A Defiant with a 152 mm (6") flue collar is approved for venting into a masonry chimney with a nominal flue size of 203 x 203 mm (8" x 8"), and into a round flue with nominal flue of 152 mm (6").

**NOTE: When installed with a 6" flue collar, the Defiant may not be operated with the front doors open.**

Whatever the flue collar size, A Defiant may be vented into larger chimneys as well. However, chimneys with liners larger than 203 x 305 mm (8" x 12") may experience rapid cooling of smoke and reduction in draft, especially if the chimneys are located outside the home. These large chimneys may need to be insulated or have their flues relined for proper stove performance.

Accessories to help make the connection between stainless steel chimney liners and your Defiant are available through your local dealer.

## Chimney Connector Guidelines

A chimney connector is the double-wall or single-wall pipe that connects the stove to the chimney. The chimney itself is the masonry or prefabricated structure that encloses the flue. Chimney connectors are used only to connect the stove to the chimney, as in Figure 5.

### Connecting Flue Pipes

Connector pipes should meet the requirements of the building regulations. This can be achieved by the use connecting fluepipes included in the following categories:

- a) Vitreous enamelled steel pipe complying with BS 6999: 1989 (1996);
- b) Pipes made from stainless steel as described in BS EN 1008-1:1995 grades 1.4401, 1.4404, 1.4432 or 1.4436 with flue wall thickness of at least 1 mm;
- c) Mild steel fluepipes complying with BS 1449: Part 1: 1991, with a flue wall thickness of at least 3 mm;
- d) Cast iron fluepipes complying with BS 41: 1973 (1998).



Flue Pipes with a spigot and socket joint should be fitted with the socket facing upwards, to contain condensates and moisture within the flue. Joints should be made gas tight using proprietary jointing accessories, or, where appropriate, by packing joint with noncombustible rope and fire cement.

Double-wall connectors must be tested and listed for use with solid-fuel burning appliances. Single-wall connectors should be made of 24 gauge or heavier steel. Do not use galvanized connector; it cannot withstand the high temperatures that can be reached by smoke and exhaust gases, and may release toxic fumes under high heat. The connector may be 152 mm (6") or 203 mm (8") in diameter.

If possible, do not pass the chimney connector through a combustible wall or ceiling. If passage through a combustible wall is unavoidable, refer to the section on Wall Pass-Throughs. Do not pass the connector through an attic, a closet or similar concealed space. The whole connector should be exposed and accessible for inspection and cleaning.

In horizontal runs of chimney connector, maintain a distance of 610 mm (24") from the ceiling. Keep it as short and direct as possible, with no more than two 90° turns. Slope horizontal runs of connector upward 6 mm per meter (1/4" per foot) going from the stove toward the chimney. The recommended maximum length of a horizontal run is 914 mm (36"), and the total length should be no longer than 2.4 m (8'). In cathedral ceiling installations, extend the prefabricated chimney downward to within 2.4 m (8') of the stove.

**Wear gloves and protective eyewear when drilling, cutting or joining sections of chimney connector.**

### Double-wall Chimney Connectors

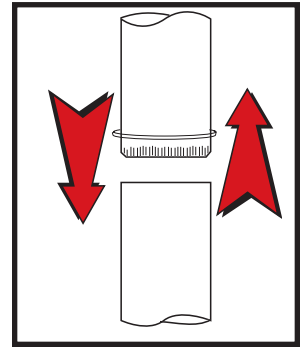
Information on assembling and installing double-wall connectors is provided by the manufacturer of the double-wall pipe. Follow the manufacturer's instructions exactly as you assemble the connector and attach it to the stove and chimney. Using chimneys and connectors from the same manufacturer makes the assembly and installation straightforward.

**NOTE:** For installations using double-wall connectors, minimum clearances must conform to the listed clearances in the clearance chart on Page 14.

If the Defiant is equipped with the 203 mm (8") flue collar, an oval-to-round adapter will be needed. Double-wall oval-to-round adapters are available from some manufacturers. Your local dealer can help you select the right connector.

### Single-wall Chimney Connectors

- Begin assembly at the flue collar of the stove. Insert the first crimped end into the stove's flue collar, and keep each crimped end pointing toward the stove. (Fig. 4) Using the holes in the flue collar as guides, drill 3 mm (1/8") holes in the bottom of the first section of chimney connector and secure it to the flue collar with three #10 x 1/2" sheet metal screws.
- Secure each joint between sections of chimney connector, including telescoping joints, with at least three (3) sheet metal screws. The pre-drilled holes in the top of each section of chimney connector serve as guides when you drill 3 mm (1/8) holes in the bottom of the next section.
- Secure the chimney connector to the chimney. Instructions for various installations follow.
- Be sure the installed stove and chimney connector are correct distances from nearby combustible materials.



**Fig. 4** the crimped end of the connector points toward stove.

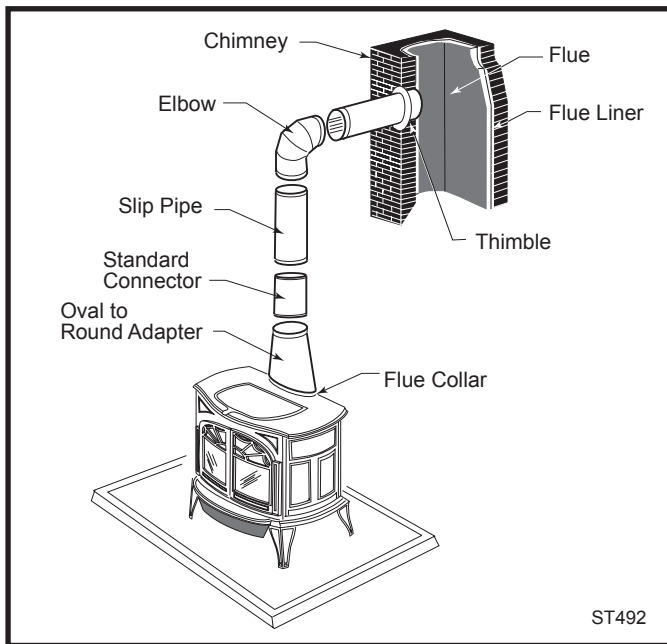
**NOTE:** Special slip pipes and thimble sleeves that form telescoping joints between sections of chimney connector are available to simplify installations. They often eliminate the need to cut individual connector sections. Consult your local dealer about these special pieces.

### Securing the Single-wall Connector to a Prefabricated Chimney

Follow the installation instructions of the chimney manufacturer exactly as you install the chimney. The manufacturer of the chimney will supply the accessories to support the chimney, either from the roof of the house, at the ceiling of the room where the stove is installed, or from an exterior wall.

Special adapters are available from your local dealer to make the connection between the prefabricated chimney and the chimney connector. The top of such adapters attaches directly to the chimney or to the chimney's ceiling support package, while the bottom of the adapter is screwed to the chimney connector.

These adapters are designed so the top end will fit outside the inner wall of the chimney, and the bottom end will fit inside the first section of chimney connector. When assembled in this way, any soot or creosote falling from the inner walls of the chimney will stay inside the chimney connector.



**Fig. 5** Chimney connection in a freestanding masonry installation.

### Securing the Single-wall Connector to a Masonry Chimney

Both freestanding masonry chimneys and fireplace masonry chimneys may be used for your installation.

#### Freestanding Installations

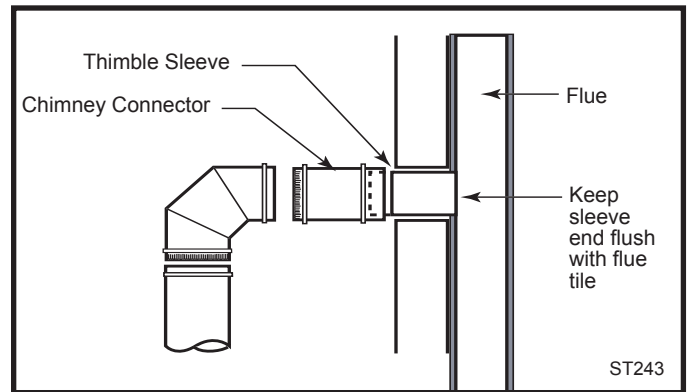
If the chimney connector must pass through a combustible wall to reach the chimney, follow the recommendations in the Wall Pass-Through section that follows.

The opening through the chimney wall to the flue (the “breach”) must be lined with either a ceramic or metal cylinder, called the “thimble”, which is cemented securely in place. Most chimney breaches incorporate thimbles, but the fit must be snug and the joint between the thimble and the chimney wall must be cemented firmly.

A special piece called the “thimble sleeve,” slightly smaller in diameter than standard connectors and most thimbles, will facilitate the removal of the chimney connector system for inspection and cleaning. Thimble sleeves should be available from your local dealer.

To install a thimble sleeve, slide it into the breach until it is flush with the inner flue wall. Do not extend it into the actual flue passage, as this could interfere with the draft.

The thimble sleeve should protrude 1-2” (25-50mm) into the room. (Fig. 6) Use furnace cement and thin gasketing to seal the sleeve in place in the thimble. Secure the chimney connector to the outer end of the sleeve with sheet metal screws.



**Fig. 6** The thimble, made of either ceramic or metal, must be cemented securely in place.

Without a thimble, a suitable length of chimney connector can be extended through the breach to the inner face of the flue liner, and cemented securely in place. Additional pieces of connector are then attached with sheet metal screws.

### Fireplace Installations

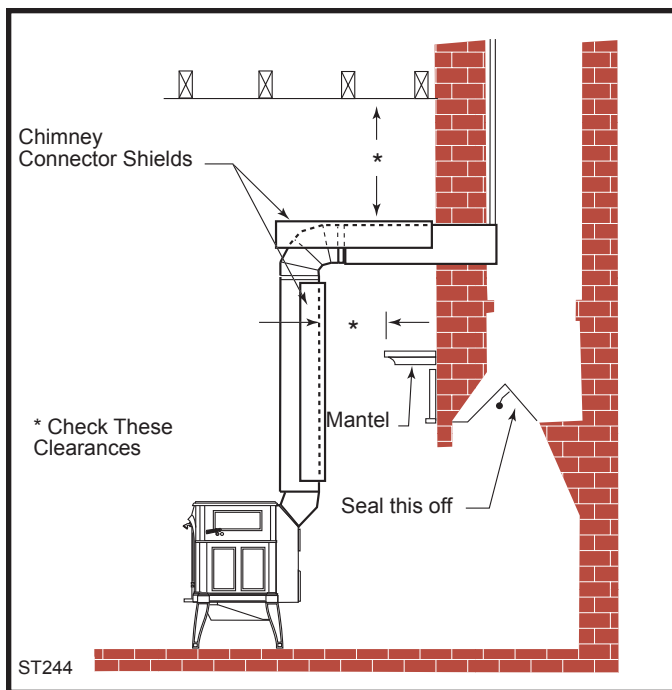
The chimney connector may be connected to the chimney above the fireplace opening or through the fireplace.

#### Above the Fireplace

The Defiant may be connected to a chimney above a fireplace opening. (Fig. 7) In such installations, the stove is positioned on the hearth in front of the fireplace and the chimney connector rises from the stove top and then angles ninety degrees back into the chimney. The chimney liner should extend to the point at which the chimney connector enters the chimney.

If the chimney connector from your installation enters the chimney above a fireplace, follow all the guidelines mentioned above for freestanding installations. In addition, give special consideration to the following points:

- Check the clearance between the stove and the chimney connector, and any combustible trim or the mantel. Use the necessary combination of mantel, trim, and connector heat shields to achieve the required clearances.
- Check the clearance between the chimney connector and the ceiling. If no heat shields are used, the clearance should be at least 610 mm (24”).
- The fireplace damper must be sealed to prevent room air from escaping up the flue. However, it must be possible to re-open the damper to inspect or clean the chimney.



**Fig. 7** In this installation, the chimney connector is attached to the chimney above the fireplace opening.

### Through the Fireplace

If your fireplace opening height is at least 737 mm (29"), you may install A Defiant through the opening using a "positive connection" kit, available from your local dealer. These positive connection kits ensure a tight fit between the stove flue collar and the chimney flue. (Fig. 8)

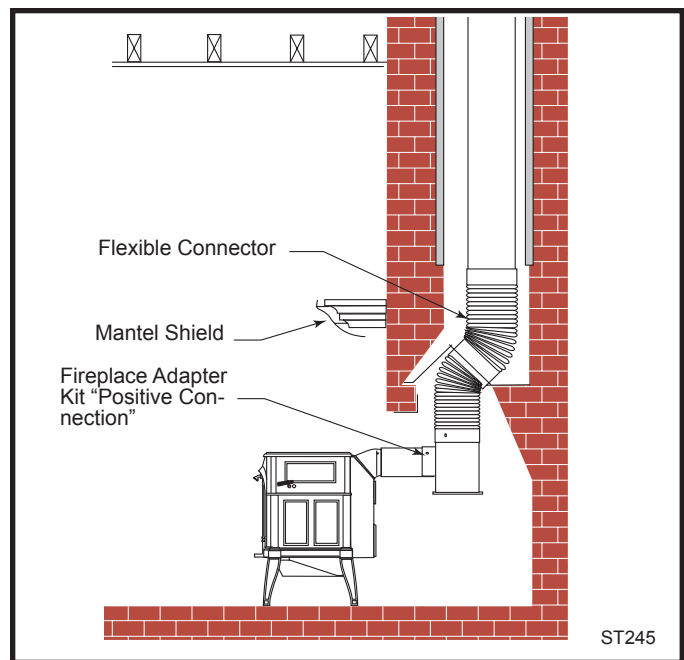
Fireplace installations, whether connected to the flue above or through the fireplace opening, have special clearance requirements to adjacent trim and the mantel. You'll find the required safe clearances for Defiant fireplace installations on Page 11.

Floor protection requirements also apply to fireplace installations. This information is on Page 9.

### Wall Pass-Throughs

Whenever possible, design your installation so the connector does not pass through a combustible wall. If you are considering a wall pass-through in your installation, check with your building inspector before you begin. Also, check with the chimney connector manufacturer for any specific requirements.

Accessories are available for use as wall pass-throughs. If using one of these, make sure it has been tested and listed for use as a wall pass-through.

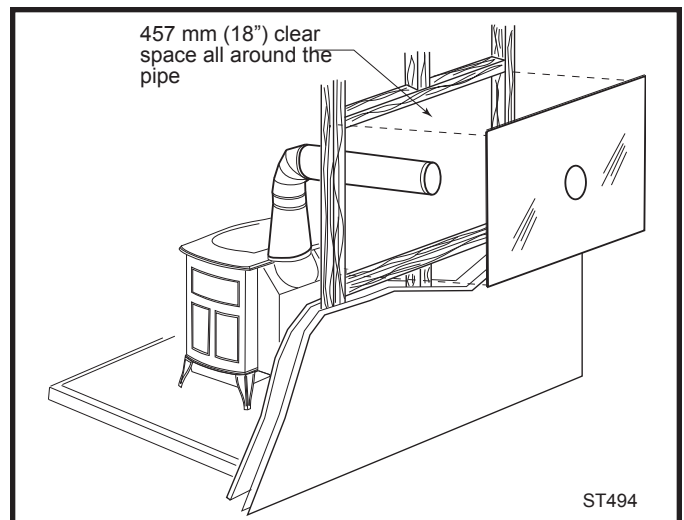


**Fig. 8** In this installation, the chimney connector enters the fireplace opening and then connects to the chimney.

Figure 9 shows one method of passing a connector through a wall. All combustible material in the wall is cut away to provide the required 457 mm (18") clearance for the connector. The resulting space must remain empty. A flush-mounted sheet metal cover may be used on one side only. If covers must be used on both sides, each cover must be mounted on noncombustible spacers at least 25 mm (1") clear of the wall.

Your local dealer or your local building inspector can provide details for other approved methods of passing a chimney connector through a combustible wall in your area.

### DO NOT CONNECT A DEFINIT TO ANY AIR DISTRIBUTION DUCT OR SYSTEM.



**Fig. 9** An approved wall pass-through.



## Hearths

This appliance must be installed on to hearth that meets the requirements of Part J of the Building Regulations 2000 (Combustion Appliances and Fuel Storage Systems). This can be achieved by ensuring that the hearth is constructed and sized in accordance with the guidelines included in section 2 of approved document 'J'. The size and clearances of the hearth are as follows:

The constructed hearth should be constructed in accordance with the recommendations in document J, and should be of minimum width 840 mm and minimum depth 840 mm (if a free standing hearth b) above) or a minimum projection of 150 mm from the jamb (if a recessed hearth a) above).

Unless the stove hearth is completely noncombustible, the bottom heat shield should be installed to provide radiant protection for framing which may be below the hearth. (Fig. 11)

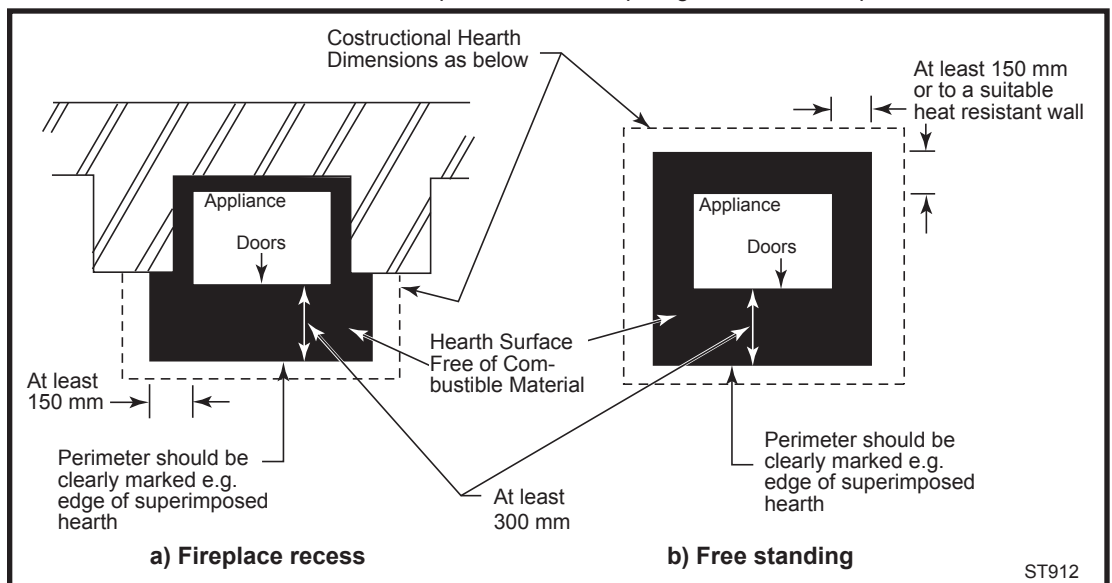


Fig. 10 Noncombustible hearth surface dimensions.

## Floor Protection for Fireplace Installations

Do not assume that your fireplace hearth is completely noncombustible.

Many fireplace hearths do not meet the “completely non-combustible” requirement because the brick or concrete in front of the fireplace opening is supported by heavy wood framing. (Fig. 11) Because heat passes through brick or concrete readily, it can easily pass through to the wood. As a result, such fireplace hearths can be a fire hazard and are considered a combustible floor.

Keep in mind, also, that many raised hearths will extend less than the required clearance from the front of the heater when it is installed. In such cases, sufficient floor protection as described above must be added in front of the hearth to satisfy the minimum floor protector requirement from the front of the stove: 406 mm (16”) from the front.

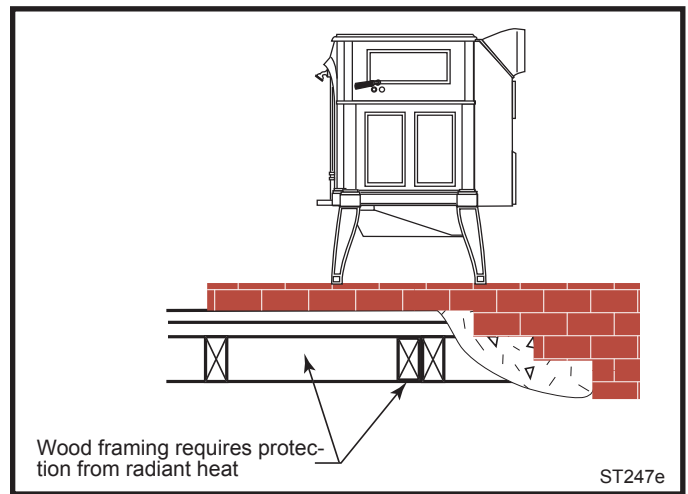


Fig. 11 Combustible supporting timbers may lie beneath fireplace hearths, requiring additional floor protection.

## Keep the Stove a Safe Distance from Surrounding Materials

Hearth rugs do not satisfy the requirements for floor protection.

Both a stove and its chimney connector radiate heat in all directions when operating, and dangerous overheating of nearby combustible materials can occur if they are too close to the heat. A safe installation requires that adequate clearance be maintained between the hot stove and its connector and nearby combustibles.

Clearance is the distance between either your stove (measured from the bottom edge of the stove’s top plate) or chimney connector, and nearby walls, floors, the ceiling, and any other fixed combustible surface. Your stove has special clearance requirements that have been established after careful research and testing to both US and European standards. These clearance requirements must be strictly observed.

In addition, furnishings and other combustible materials must be kept away from the stove as well. In general, a distance of 1219 mm (48") must be maintained between the stove and moveable combustible items such as drying clothes, furniture, newspapers, firewood, etc. Keeping those clearance areas empty assures that nearby surfaces and objects will not overheat.

### Safe Ways to Reduce Clearances

#### Clearances

As with any solid fuel heating stove, extremely high surface temperatures can occur, particularly in the event of uncontrolled operation, e.g. if the doors are inadvertently left open. It is crucial that sufficient clearances are allowed to any combustible surfaces, e.g. wooden mantels or lintels, and to timber framed (studded) walls even if they are faced with noncombustible board. Detailed information on fireplace and hearth construction is provided in section 2 of Document J, all installations must comply with these requirements or with the relevant National or local building standards.

Clearances to timber framed (studded) walls are included below. There are no specific minimum clearances to solid noncombustible surfaces (e.g. the sides and rear of Ingle-nook fire openings constructed from solid masonry) other than to allow safe access to the controls of the stove. For this reason minimum side clearances of 125 mm, and a minimum rear clearance of 50 mm are recommended.

#### Summary of Clearances

**Minimum recommended side clearances to noncombustible surfaces 125 mm (5").**

**Minimum recommended rear clearance to noncombustible surfaces 50 mm (2").**

**NOTE:** The minimum thickness of solid noncombustible materials is specified in section 2 of Document 'J', in relation to the clearance of the appliance from the surface. As a general rule, the thickness of solid noncombustible material forming the recess of a fireplace is a minimum of 200 mm.

**Minimum rear clearance from combustible walls (e.g. timber framed or studded walls) 254 mm (10") measured from the rear edge of the stove top. (Fig. 12, B)**

**Minimum side clearance from combustible walls 483 mm (19") measured from the side edge of the stove top. (Fig. 12, A)**

**Minimum distance from stove to movable combustible materials (e.g. furniture, drying clothes, etc.) 1220 mm (48").**

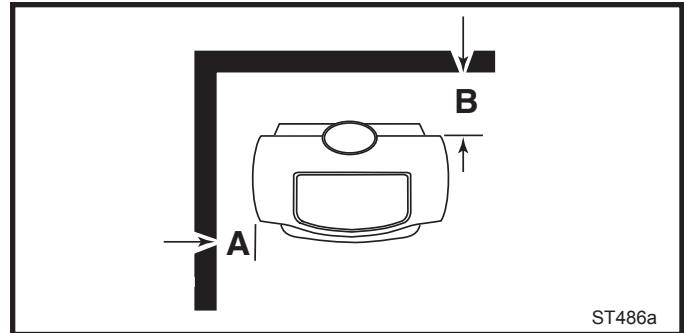


Fig. 12 Minimum clearances.

#### Connecting Flue Pipe - Clearances

Single wall connecting fluepipes can reach extremely high temperatures; therefore, clearances from the connecting fluepipe (chimney connector) must comply with the requirements of Part J of Building Regulations 2000 (Combustion Appliances and Fuel Storage Systems). This can be achieved by following the recommendations of Approved Document 'J'. These are as shown in Figure 13.

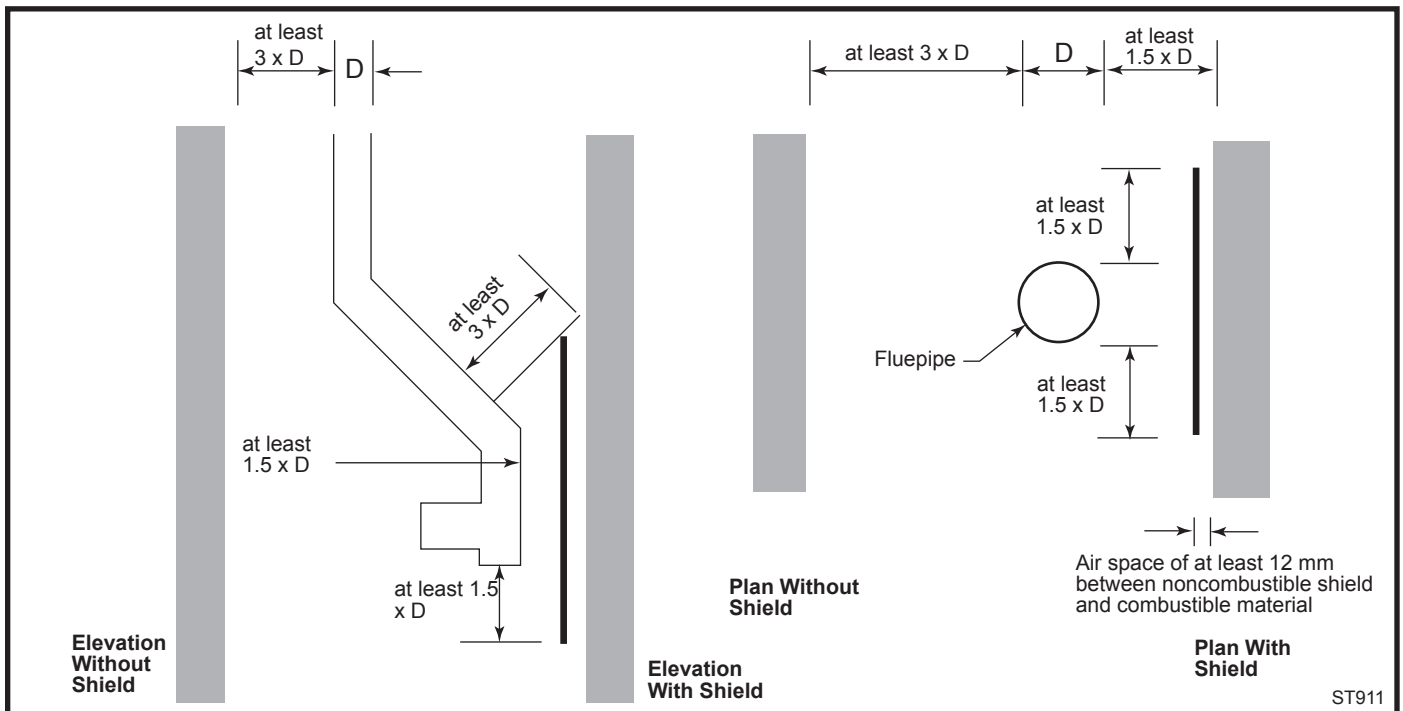


Fig. 13 Connecting fluepipe clearances.

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## Assembly

### Set Up Your Stove

Cast iron stoves are heavy, and it will take two to four people to move your Defiant into position.

Wipe the protective coating of oil from the griddle with a clean dry rag or a paper towel.

Install the handle on the griddle. First, place the griddle upside down at the edge of a flat surface and assemble the handle as shown.

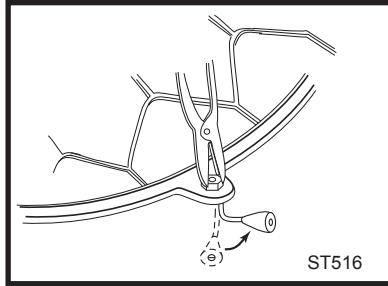


Fig. 14 Attach the griddle handle.

With the handle pointing 45° from its final position, tighten the nut as far as possible with the pliers. Move the handle to its final position while still holding the nut with the pliers.

### Storing the Handle

Use the removable handle to open or close the doors. After using it, remove the handle so it will not get hot. Store the handle in the handle holder installed behind the right front leg. (Fig. 15)

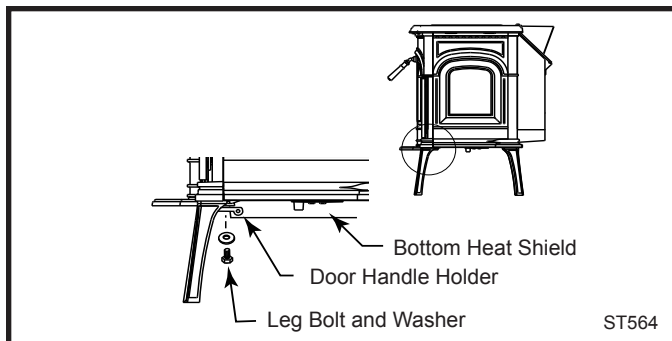


Fig. 15 Handle holder and heat shield positions.

### Install the Bottom Heat Shield

**NOTE:** The Bottom Heat Shield is required in most installations. Refer to Floor Protection, Page 9, for further details.

1. Loosen the four 1/4-20 hex head bolts from the corners of the ash drop on the stove bottom.
2. Align the bottom heat shield holes with the four bolts. The outside air cutout hole should be toward the rear of the stove. The unpainted side must face up towards the stove.
3. Pass all four bolts through the large end of the keyholes and then pulling the shield forward to engage the smaller ends of the keyhole slots. (Fig. 16)
4. Attach the heat shield sides by passing the slots over the bolt heads. Tighten the hex head bolts.

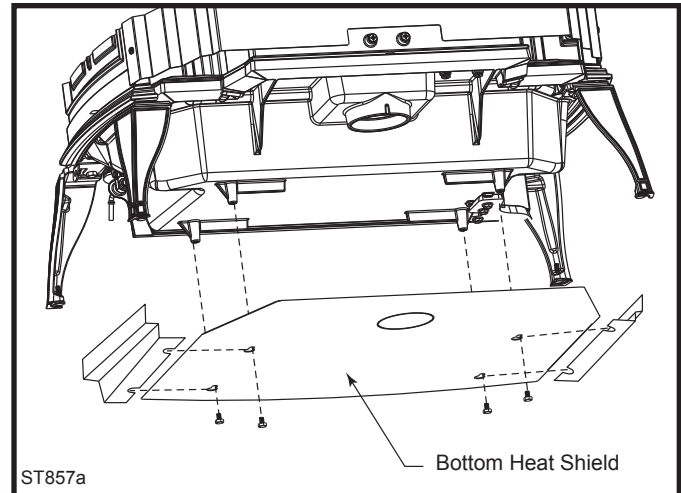


Fig. 16 Attach the bottom heat shield.

### Adjust the Leg Levellers

Lift the stove slightly so there is no weight on the leg while making the adjustment.

### Reverse the Flue Collar (If necessary)

Reverse the flue collar by removing the two screws that attach it to the back of the stove. Be sure the gasket around the flue collar opening is in position when you screw the collar back onto the stove.

### Adjust Air Deflector

If you have the optional fan kit, you may decide to adjust the air deflector to blow heat across the top of your stove. (Fig. 17) Loosen the two (2) screws on each side and raise or lower the deflector. After adjustment, tighten the screws.

### Attach Flue Collar Heat Shield

**WARNING:** The flue collar heat shield must be attached to the Defiant stove. Use four #10 sheet metal screws supplied to secure the flue collar heat shield to the rear of the stove. (Fig. 17)

### Attach the Damper Handle

Use the 1/4" -20 x 3" screw to attach the damper handle to the damper stub on the left side.

### Attach the Primary Air Thermostat Handle

The primary air thermostat handle is the smaller of the two black handles. Secure the handle to the stub on the right side of the stove with an 8-32 x 2" slot head machine screw. (Fig. 18)

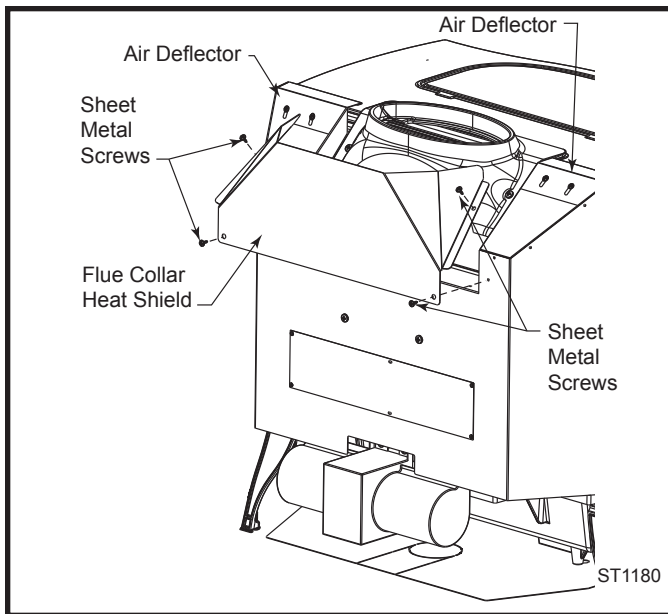


Fig. 17 Install flue collar heat shield.

**WARNING:** The flue collar heat shield must be installed in all vertical installations. The flue collar heat shield is not used when the flue collar is in the rear exit position.

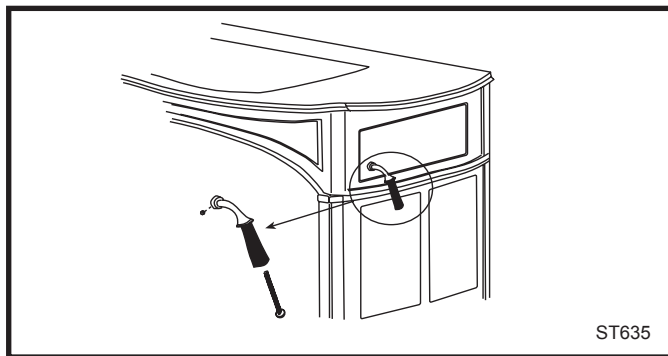


Fig. 18 Attach the thermostat handle.

### Assemble the Removable Insert Handle

The ceramic removable insert handle opens and closes the front doors. Remove after each use, and store it in the handle holder behind the right front leg. Assemble the handle by passing the 3/8" screw through the ceramic shaft and into the bright metal nub. (Fig. 19) Tighten carefully until snug.

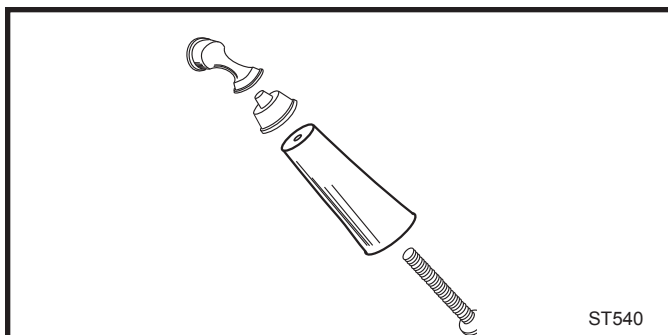


Fig. 19 Assemble the front door handle.

### Fan Kit Installation

1. Attach the fan assembly at the bottom edge of the inner back with two (2) 1/4-20 x 3/4" hex head screws.
2. Attach snapstat to the mounting holes on the underside of the bottom with two (2) 1/4-20 pan head screws.
3. Attach the rheostat holder (provided with the stove) under the right front wing of the bottom heat shield with two (2) #10 sheet metal screws.
4. Attach the rheostat to its holder by inserting the rheostat control shaft through the holder hole. Install the retaining ring and rheostat knob onto the shaft.
5. Secure the rheostat cable to the underside of the bottom heat shield using the wire tie provided and the hole at the right rear edge of the heat shield.
6. Fan will not operate until stove reaches approximately 43° C (109° F).
7. Plug blower cord into a grounded outlet. Do not remove ground prong from plug. Route power cord to avoid heat from the stove or other damage. Do not route cord under or in front of appliance.

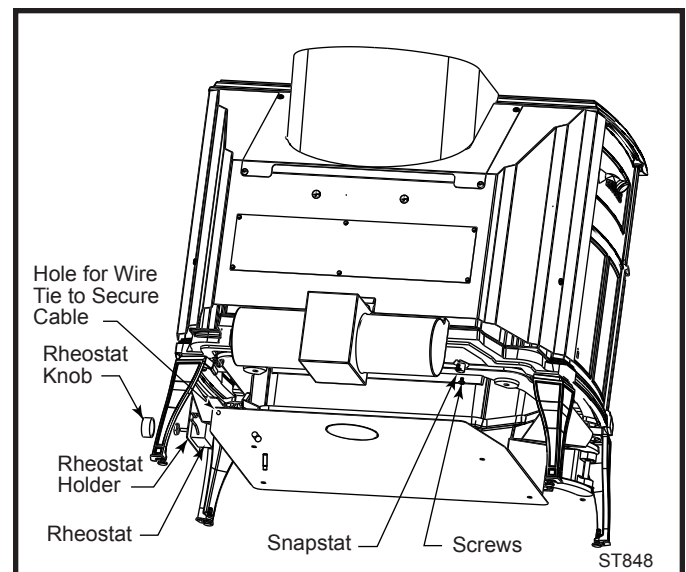


Fig. 20 Fan installation (Kit # FK26).



### Installing or Removing Catalyst

1. Remove the access cover by gently lifting up and pulling out from the bottom edge. (Fig. 21)
2. Remove the inner cover by pulling it straight out. (Fig. 22)
3. Remove the catalyst by gently pulling it straight out. (Fig. 23) Place the catalyst where the catalyst's ceramic components will not be damaged.

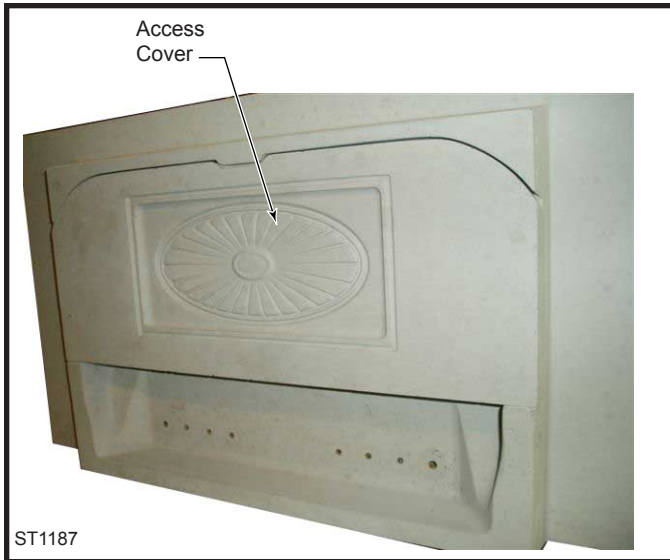


Fig. 21 Remove access cover.

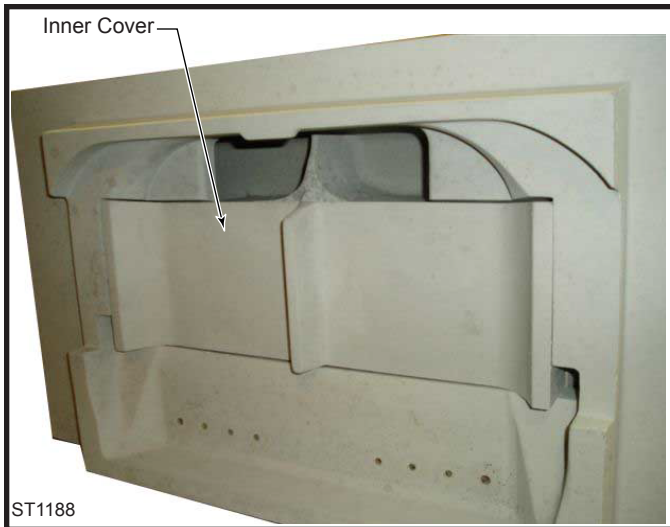


Fig. 22 Remove inner cover.



Fig. 23 Remove catalyst.

## Operation

### The Defiant Controls

Two controls regulate the performance of the Defiant: a **primary air control** supplies oxygen for the fire, and a **damper** directs air flow within the stove to activate and deactivate the catalytic combustor.

Symbols cast into the stove are reminders of the correct directions for opening and closing the controls. The symbols assume that you are facing the front of the stove.

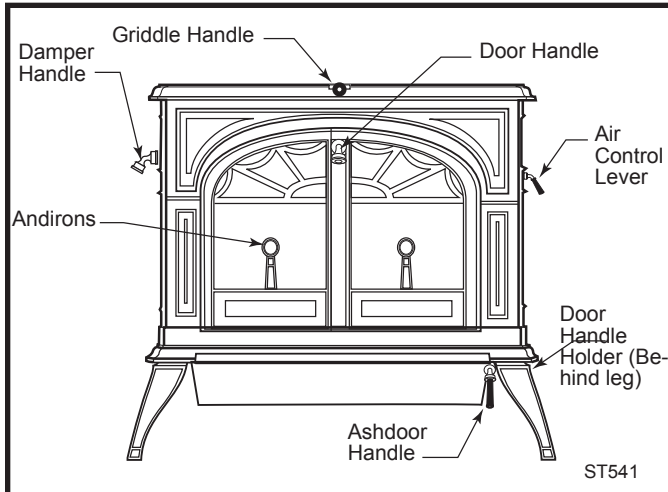


Fig. 24 The Defiant controls are conveniently located and easy to operate.

### A Single Air Control Regulates Heat Output and Burn Time

The **primary air control lever**, located on the right side of the stove, controls the amount of incoming air for starting, maintaining, and reviving a fire.

More air entering the stove makes the fire burn hotter and faster, while less air prolongs the burn at a lower heat level. High and low settings appear in Figure 25.

For the greatest air supply and maximum heat output (but the shortest burn time), move the lever toward the front of the stove. For a fire that will last longer with less heat, move the lever toward the rear of the stove.

The Defiant's air control system also features an automatic thermostat to ensure an even heat output at whatever manual setting you select. The thermostat senses the heating and cooling of the stove surface and adjusts the air shutter accordingly.

### A Damper Directs Air Flow Within the Stove

The **damper handle** on the left side of the stove operates the damper to direct air flow within the stove.

The damper is **open** when the handle points to the **rear**, enabling smoke to pass directly into the chimney. The

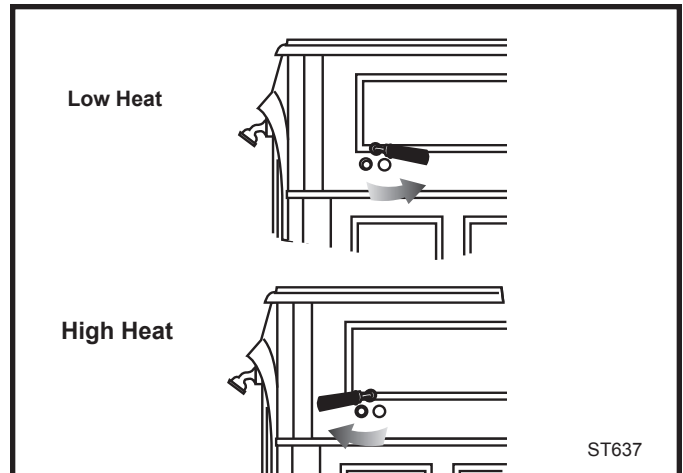


Fig. 25 The handle may be positioned anywhere between the two extremes for different heat levels.

damper must be open when starting or reviving a fire, and whenever the griddle or doors are opened.

The damper is **closed** when the handle points **forward**. Smoke travels through the non-catalytic combustion system where it can be further burned, before passing up the chimney. (Fig. 26)

**The damper should always be either fully open or fully closed. There are no intermediate positions. When closing the damper, be sure to pull firmly enough to snap the handle into the locked position.**

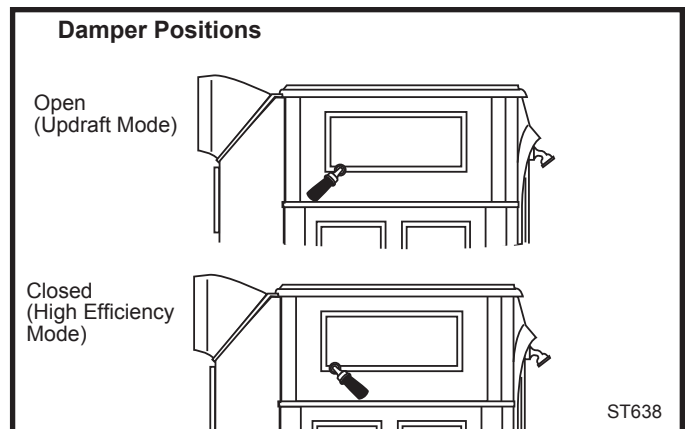


Fig. 26 The damper is either open or closed. There are no intermediate positions.

### High-Efficiency Wood Burning with Catalytic Combustion

A Defiant leaves the factory with the combustor packaged separately.

In the United States, it is against the law to operate this wood heater in a manner inconsistent with operating instructions in this manual. The components of the catalytic

combustion system in your Defiant work together to produce optimum conditions for secondary combustion.

When the damper is closed, smoke travels through the catalytic element, which causes ignition of smoke at temperatures of 260°-315°C (500°-600° F), half the temperature normally required for unaided secondary combustion.

The catalytic element is a ceramic “honeycomb” coated with the catalytic material. The element is located in the secondary combustion chamber, molded from a special high-temperature insulating refractory material. The chamber provides the correct environment necessary for secondary combustion of the fuel (smoke).

Closing the damper exposes the smoke to the combustor. If the combustor is at least 315°C (600°F), it will begin to burn the smoke.

Closing the stove damper may also reduce the draft, so to avoid putting out the fire or deactivating the combustor, close the damper only when a fire is well-established and the chimney is thoroughly warmed. When starting a fire, wait until the fire is well established and there is an ember bed of at least 75 - 100 mm (3-4 inches) before closing the damper.

Never kindle a fire with colored paper or paper that has colored ink or a glossy surface, and never burn treated wood, garbage, solvents, or trash. All of these may poison the catalyst and prevent it from operating properly. Never burn cardboard or loose paper except for kindling purposes. Never burn coal; doing so can produce soot or large flakes of char or fly ash that can coat the combustor and cause smoke to spill into the room. Coal smoke also can poison the catalyst so that it won't operate properly.

In general, the fire must be sufficiently well-established to ensure that catalytic activity is initiated. When first starting a fire, a medium- to high- firing rate must be maintained until the stove, catalyst, and fuel are all stabilized at the proper operating temperatures, and the chimney is warmed.

Even though it is possible for the fire to get quite hot within a few minutes after a fire is started, the combustor may stop working or the fire may go out if the fire dies down immediately as a result of the damper being closed. Once the combustor starts working, heat generated by burning the smoke will keep it working.

To determine whether the combustor is operating, observe the amount of smoke leaving the chimney when the damper is activated and when it is not. This procedure is described on Page 22.

Avoid using a full load of very dry wood in the firebox. This may result in continuous very high temperatures in the secondary combustion area and damage the combustor. Wood which has been split, and stored under cover for more than 18 months may be considered very dry. If you must burn extra-dry wood, mix it with greener wood for a longer fire and less stress on the combustor. Also, do not

use a full load of dry slab wood or scrap wood. For long burns, use a mix of dry and moderately dry wood.

## Two Ways to Add Fuel

The Defiant's griddle lifts for convenient top-loading of logs, and is the easiest way to add fuel. (Fig. 27)

However, the front doors open as well for adding an occasional log to a fire. If the stove is equipped with 8" (203 mm) stove pipe, the front doors may be opened (or even removed) and the optional Defiant spark screen placed in the opening for open-fire viewing. **The Defiant is not approved for operation with the front doors open if equipped with a 152 mm (6") chimney connector or chimney.**

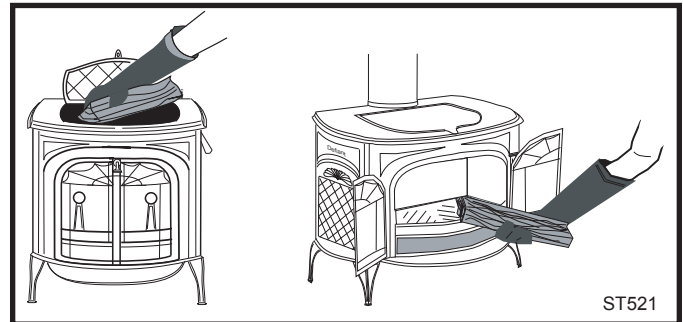


Fig. 27 Top loading is the best way to add fuel during regular use. Front loading is useful for kindling a fire.

To open the front doors, insert the handle into the door latch stub and turn it to the left and up. (Fig. 28)

To close them, always close the left door first. Turn the handle in the right door to the left and up (to the open position) and close it. Finally, push on the door as you turn the handle to the right and down. The doors will draw in slightly, and the handle should offer some resistance as you turn it to the closed position.

To reduce the risk of breaking the glass, avoid striking the glass or slamming the doors.

When you are not using the door handle, store it in the holder behind the right front leg of the stove. Be careful to not drop the handle, since it is breakable.

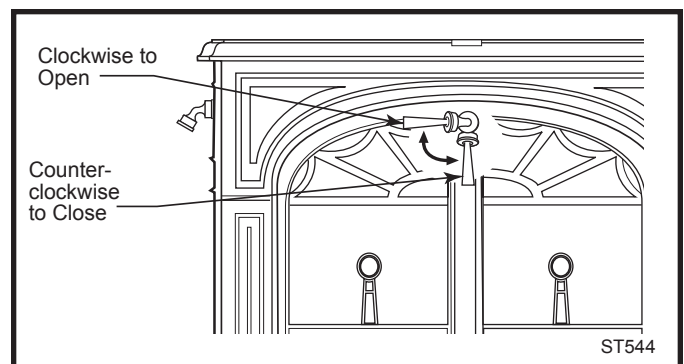


Fig. 28 To open the front doors, turn the handle clockwise.

**CAUTION: The Defiant will be hot while in operation. Keep children, clothing and furniture away. Contact may cause skin burns.**

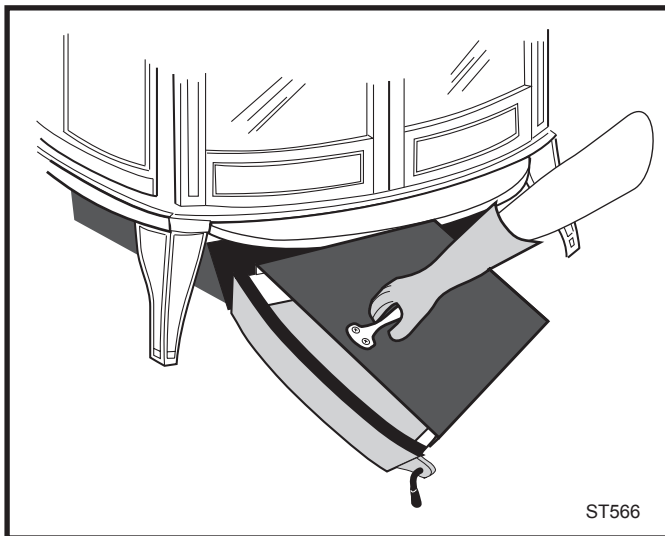
**DO NOT OVERFIRE THIS HEATER.** Overfiring may cause a house fire, or can result in permanent damage to the stove and to the catalytic combustor. If any part of the Defiant glows, you are overfiring.

### Ash Disposal

You should remove ash before it reaches the top of the ash pan. Check the level at least once a day. Every few days, clear any ash from the outer edges of the firebox. Most of the ash will fall through the grate. Slice or stir the ash with a shovel or poker so that it falls through the grate slots.

**IMPORTANT:** Check the level of ash in the ash pan before reloading the stove. If the ash level is close to the top edge of the pan, empty the pan according to this procedure:

- Open the damper.
- Open the griddle or front doors, and use a shovel or poker to stir excess ash through the ash slots in the grate down into the ash pan.
- Close the griddle or doors, and unlatch the ash door. It will pivot, swinging the ash pan out of the stove.
- Slide the cover onto the pan, making sure it is securely closed. (Fig. 29)



**Fig. 29** Be sure the cover is securely attached before removing the ash pan.

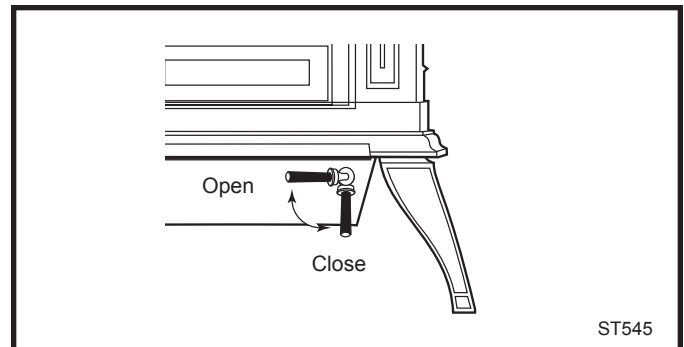
- Remove the ash pan, making sure to keep it level.
- To keep the cover from sliding off and to keep ash from falling on the floor, do not tilt the ash pan forward. If the stove is in operation, close the ash door while disposing of the ash.
- Properly dispose of the ash in a metal container with a tight-fitting lid. Store the container outdoors away from all combustible material.
- Return the ash pan to its original position in the stove, and close and latch the ash door.
- Do not operate the stove with the ash door open. This will result in over-firing, and could cause damage to the stove, void the warranty, or even lead to a house fire.

Empty the ash pan regularly, typically every one to three days. The frequency will vary depending on how you operate your Defiant: ash will accumulate faster at higher heat outputs.

Remove ash frequently and place it outdoors in a metal container with a tight-fitting lid. Place the closed container of ash on a noncombustible floor or on the ground, well away from all combustible materials, pending final disposal. If the ash is disposed of by burial in soil or otherwise locally dispersed, it should be kept in the closed container until all cinders have thoroughly cooled.

You can use wood ash as a garden fertilizer.

**CAUTION:** Never use your household or shop vacuum cleaner to remove ash from the stove; always remove and dispose of the ash properly.



**Fig. 30** Turn the handle to the ash pan compartment clockwise to open and counterclockwise to close.



## Maintenance

### Keep Your Stove Looking New and Working Its Best

Let the fire in the stove go out and allow the stove to cool completely before beginning any maintenance procedure.

### Care of the Cast Iron Surface

An occasional dusting with a dry rag will keep the painted cast iron of your Defiant looking new.

The stove's paint can be touched up as needed. First, mask the areas, such as enamelled parts, glass, or handles, around the spot to be painted. Clean the spot with a wire brush. Remove the griddle and set it aside. It is normal for the griddle to darken after use. You can clean it with a fine-bristle wire brush, or steel wool.

Then, touch up the stove with Vermont Castings' high temperature stove paint. Apply the paint sparingly; two light coats of paint are better than a single heavy one.

### Care of the Porcelain Enamel Surface

Use a dry or slightly damp rag or soft brush to remove spills or stains. For difficult jobs that require a cleaning agent, use only a kitchen appliance cleaner or polish recommended for use on enamel surfaces.

If porcelain enamel becomes chipped or scratched during use, apply "enamel epoxy" to the damaged area and allow to dry. Once the epoxy has dried, sand the area to blend with surrounding area and apply appropriate color touch-up paint. Allow to dry completely before operating stove.

### Cleaning the Glass

Most of the carbon deposits on the glass will burn off during hot fires.

However, the ash residue that accumulates on the glass surface should be removed regularly to prevent etching. To clean the glass, follow this procedure:

- Be sure the glass is completely cool.
- Clean the glass with water or a cleaner made especially for this purpose. Do not use abrasive cleaners. Use cleaning agents sparingly and be sure to keep them off the outer surfaces of the stove.
- Rinse the glass thoroughly.
- Dry the glass completely.

### Replace Broken Glass Immediately

Do not operate your stove if the glass in the doors is damaged.

If you need to replace the glass, use only the high temperature 5 mm ceramic glass supplied by Vermont Castings. Do not use substitutes.

### Removing the Glass

1. Remove the right and left door assemblies by raising the door until the lower hinge pin clears its hole; then, angle the door bottom slightly outward and pull down to release the upper hinge pin. Place the doors face down on a padded work surface. Be especially careful with enamelled doors.
2. Remove the screws that hold the glass retainer clips in place, and remove the clips.
3. Carefully lift the broken glass panel from the door.

### Installing the Glass

Check the gasket around the window; it should be soft and resilient so that the glass will seal properly against the door. Replace the gasket if it has hardened or if it is compressed.

1. Center the glass on the gasket.
2. Secure the glass on both doors with the retainer clips. Tighten all screws. (Fig. 31)
3. Replace the doors on the stove.
4. Open and close the doors to check that they fit and work properly. Adjust as necessary.

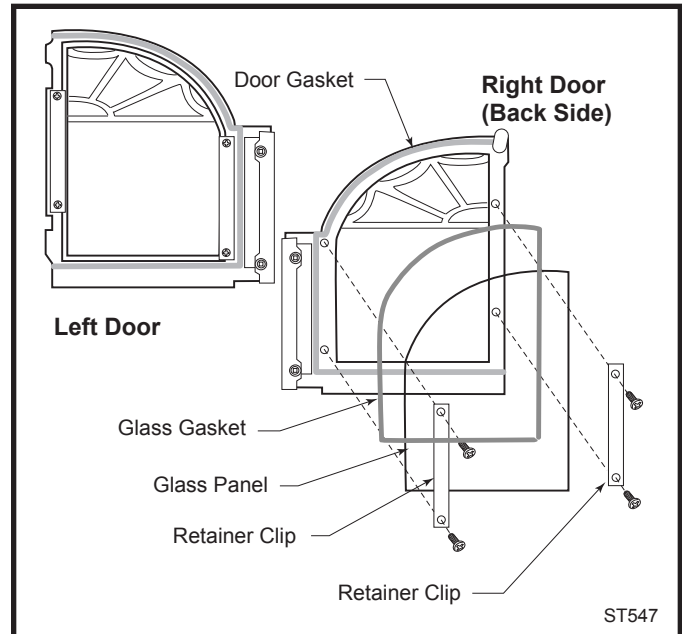


Fig. 31 An exploded view of the glass assembly.



### Adjust the Damper as Needed

The tension on the Defiant's damper is adjustable to compensate for compression of the gasket that seals the damper to the upper fireback. To adjust the damper:

1. Remove the griddle. Loosen the lock nut at the center of the damper. (Fig. 32)
2. Turn the pressure screw approximately one half turn clockwise with an Allen wrench provided with your stove.
3. Tighten the lock nut. Prevent the pressure screw from turning as you tighten the nut. Re-test the damper.

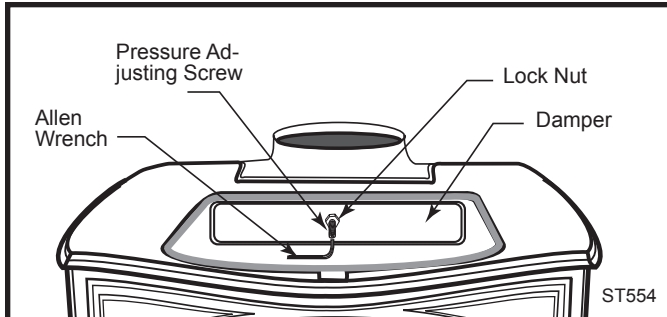


Fig. 32 Adjust the damper with the Allen wrench.

### Tighten the Damper Handle as Needed

A handle on the left side of the stove controls the damper. The handle attaches to the damper rod with a set screw. Periodically check the set screw and tighten as necessary.

### How to Adjust the Door Latches

The front door of the stove should close securely to prevent accidental opening and should close tightly to prevent air from leaking into the fire chamber. The door handle will be positioned vertically when the door is closed.

Over a period of time, the gasket around the door will compress and the latch may need adjustment. To adjust the handle, follow this procedure:

1. Remove and retain the lock nut with a 9/16" wrench. (Fig. 33)
2. Loosen the set screw with a 1/8" Allen wrench.
3. Rotate the pawl 180°. Replace the lock nut. Tighten the set screw.
4. Additional adjustment can be made by removing the flat washer. Or any combination of washer removal and/or pawl rotation.

Test the door seal. Close the door on a dollar bill and attempt to pull it free. If the bill is freed with little resistance, the gasket isn't snug enough at that spot. Continue to make small adjustments until the setting is right.

If additional adjusting of the latch does not enable the door to seal sufficiently in one area, try "adjusting" the gasket in that area. Pack more cement or a smaller diameter gasket into the channel beneath the gasket so the main gasket

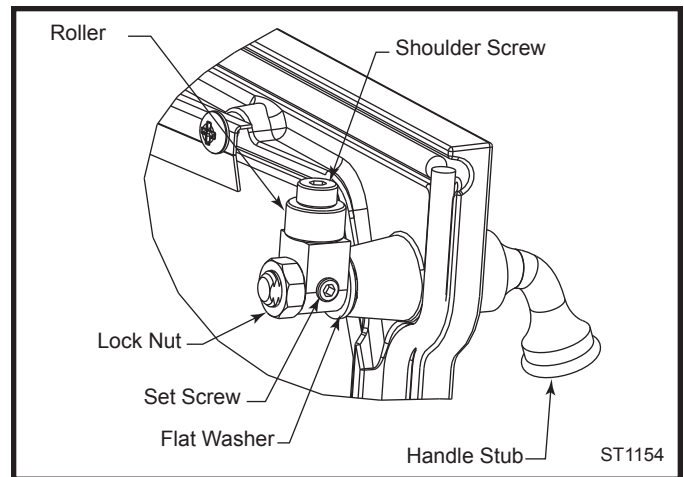


Fig. 33 Rotate pawl and/or remove flat washer to adjust latch.

is raised and makes contact with the door frame. If this procedure doesn't solve the problem, replace the gasket. Instructions for gasket replacement are given later in this section.

### Replace the Stove Gaskets as Needed

Your Defiant uses fiberglass rope gaskets to make a tight seal between some parts. With use, particularly on moving parts, gaskets can become brittle and compressed and can begin to lose their effectiveness. These will need periodic replacement.

The sizes of replaceable gasket are listed below, along with their applications.

#### Gasket Diameter... ..And the Parts it Seals

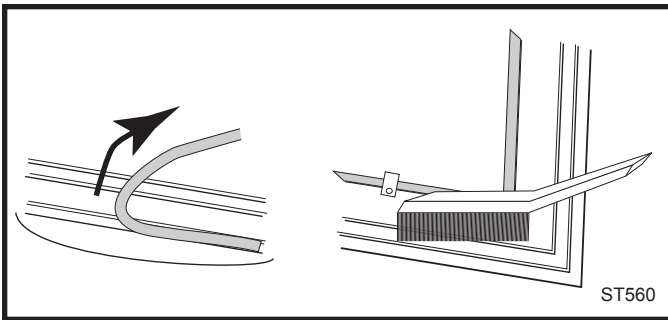
- |       |   |
|-------|---|
| 5/16" | The griddle to the stove top<br>(wire reinforced gasket)            |
| 5/16" | The damper to the upper fireback                                    |
| 3/8"  | the front doors to the stove front; and<br>the doors to each other. |
| 3/8"  | The ash door to the front of the bottom<br>panel                    |
| 3/16" | The outer glass panes to the door                                   |

If you need to change a gasket, first obtain an appropriate replacement from your Vermont Castings' Authorized Dealer.

Wait until the fire is out and the stove has cooled. Be sure to follow the standard safety procedure for working with dusty materials: wear safety goggles and a dust mask.

The procedure for replacing gaskets is the same, regardless of the gasket location. Follow these steps:

1. Remove the existing gasket by grasping an end and pulling firmly. (Fig. 34)
2. Use a wire brush or the tip of a screwdriver to clean the channel of any remaining cement or bits of gasket. Remove stubborn deposits of cement with a cold chisel if necessary. (Fig. 34)



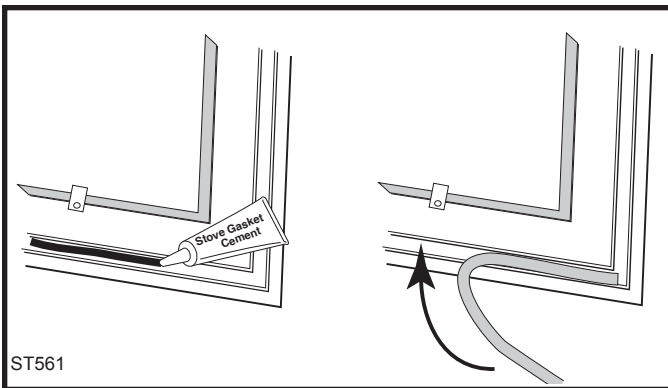
**Fig. 34** Remove gasket then clean channel with wire brush.

3. Determine the correct length of the appropriate-sized gasket by laying it out in the channel. Allow an extra 1-2" (25-50 mm), and mark the spot to be cut.

4. Remove the gasket from the channel, place it on a wood cutting surface, and cut it at the marked spot with a utility knife.

Twist the ends slightly to keep the gasket from unraveling.

5. Lay an unbroken 1/8" (3 mm) bead of silicone or cement in the newly-cleaned channel. (Fig. 35)



**Fig. 35** Lay a bead of gasket silicone or cement then press gasket in place.

6. Starting at one end, press the gasket into the channel. (Fig. 35) Ensure a good joint where the gasket meets before trimming any excess. Do not overlap the gasket ends or leave ends with ragged edges.

7. Press the gasketed part firmly against its normal mating surface to seat the gasket evenly in its channel. Close and latch the door to do this, or tap other parts with the rubber mallet (or hammer/block of wood).

8. Clean any excess cement from around the channel, then let the cement that holds the new gasket dry thoroughly.

9. The stove's doors may need adjustment after you have regasketed them. Initially, it may require loosening the latch to accommodate the new gasket; after a few weeks, it may need tightening to compensate for compression of the new gasket. The directions for adjusting the latches are on Page 19.

## All Gasketed Construction Gaskets

Other gaskets form seals between all other non-moving parts, but these are not subject to the same wear and deterioration as gaskets on moving parts. It is unlikely that you will ever need to replace these gaskets unless the involved parts are disassembled and then put back together. If this is the case, the job should be done only by a qualified service technician.

5/16" diameter gasket seals the following parts:

- The lower fireback to the back panel
- The left and right air plates (inner sides)
- All connections between the stove plates.

## The Chimney System

### Creosote

Your Defiant is designed to reduce creosote build-up significantly. However, regular chimney inspection and maintenance must still be performed. For safety, good stove performance, and to protect your chimney and chimney connector, inspect your chimney and chimney connector on a regular schedule. Clean the system if necessary. Failure to keep the chimney and connector system clean can result in a serious chimney fire.

When wood is burned slowly, it produces tar, organic vapors and moisture that combine to form creosote. The creosote vapors condense in the relatively cool chimney flue of a slow-burning fire. As a result, creosote residue accumulates on the flue lining. When ignited, this creosote makes an extremely hot fire within the flue system that can damage the chimney and overheat adjacent combustible material. If a significant layer of creosote has accumulated — 1/8" (3 mm) or more — it should be removed to reduce the risk of a chimney fire.

You can never be too safe. Contact your local fire authority for information on what to do in the event of a chimney fire, and have a clearly understood plan on how to handle one.

If you do experience a chimney fire, act promptly to:

- Close the damper and air control lever.
- Get everyone out of the house.
- Call the Fire Department.

Inspect the system every two weeks during the heating season as part of a regular maintenance schedule. To inspect the chimney, let the stove cool completely. Then, using a mirror and a strong light, sight up through the flue collar into the chimney flue. If you cannot inspect the flue system in this fashion, the stove must be disconnected to provide better viewing access.

Clean the chimney using a brush the same size and shape as the flue liner. Flexible fiberglass rods are used to run the brush up and down the liner, causing any deposits to fall to the bottom of the chimney where they can be removed through the clean-out door.

Clean the chimney connector by disconnecting the sections, taking them outside, and removing any deposits with a stiff wire brush. Reinstall the connector sections after cleaning, being sure to secure the joints between individual sections with sheet metal screws.

If you cannot inspect or clean the chimney yourself, contact your local Vermont Castings dealer or a professional chimney sweep.

## Maintenance Schedule

### The Stove

#### DAILY:

- Clear any ash build-up from around the air holes and combustion flow path in the lower fireback.
- Ashes should be removed before they reach the top of the ash pan. Check accumulation at least once a day.
- Keep the area around the stove clear of any combustible materials such as wood, furniture or clothing.

#### TWO MONTHS:

- Check door handle to be sure it is working properly. Gasketing becomes compressed after a period of time. Adjust handle tightness if necessary.
- Check leg bolts and heat shield screws; tighten if necessary.

#### ANNUAL SPRING CLEANING:

- Check gasketing for wear, and replace if necessary.
- Remove ashes from the ash pan and replace with a moisture absorbing material (such as kitty litter) to keep the interior of the stove dry.
- Clean the dust from the inner sides of bottom, rear or pipe heat shields if your stove is equipped with them. Clean surfaces are better heat reflectors than dirty surfaces.
- Touch up the black paint.
- Inspect for and remove ash build-up behind the combustion package. This should be done in conjunction with annual cleaning of the chimney connector. Inspect the passage behind the combustion package (a mirror will be helpful) and vacuum away ash using a flexible vacuum hose inserted in the passage. (Fig. 36)

## The Chimney Connector

#### TWO WEEKS:

- Inspect the chimney connector and chimney. Clean if necessary.

#### TWO MONTHS:

- Inspect the chimney and chimney connector. Pay particular attention to the horizontal runs of chimney connector, and the elbows. Clean the system if necessary.

#### ANNUAL SPRING CLEANING:

- Disassemble the chimney connector and take it outdoors for inspection and cleaning. Replace weak sections of connector.
- Inspect the chimney for signs of deterioration. Repairs to a masonry chimney should be made by a professional mason. Replace damaged sections of prefabricated chimney. Your local Vermont Castings dealer or a chimney sweep can help determine when replacement is necessary.
- Thoroughly clean the chimney.

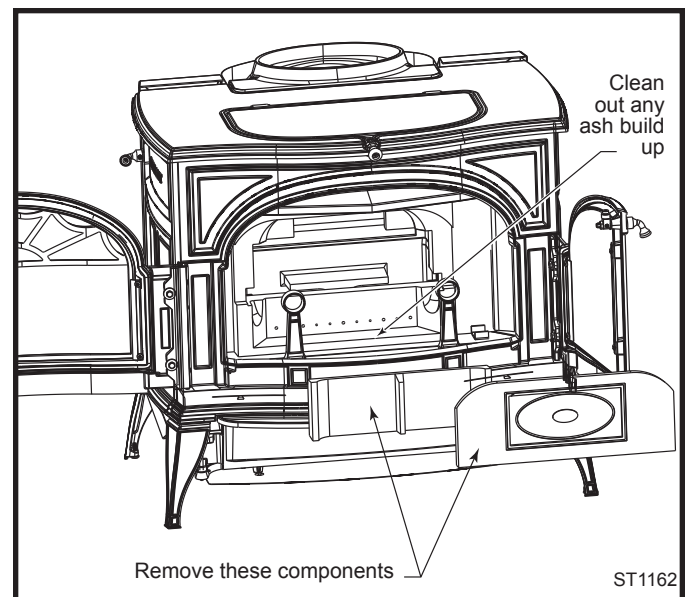


Fig. 36 Inspect and clean out ash accumulation behind the combustion system.

## The Catalytic Element

This wood heater contains a catalytic combustor, which needs periodic inspection and replacement for proper operation. In the United States it is against the law to operate this wood heater in a manner inconsistent with the operating instructions in this manual.

Under normal operating conditions, the catalytic combustor should remain active for two to six years (depending on the amount of wood burned). However, it is important to monitor the combustor periodically to ensure that it is functioning properly, as well as to determine when it needs to be replaced. A non-functioning combustor will result in a loss of heating efficiency, and an increase in creosote and emissions.

## Inspection and Cleaning

Inspect the combustor for fly ash accumulation and physical damage three times per year. Clean the combustor as needed.

The refractory package that houses the catalytic combustor should be inspected for a buildup of fly ash and cleaned if necessary. This may be done when you examine the combustor.

## When to Suspect a Combustor Problem

The best way to evaluate the performance of your Defiant's combustor is to observe the amount of smoke leaving the chimney — both when the combustor has "lighted-off" and when it has not. Follow these steps:

- With a fire going and the combustor properly activated, with the damper closed to route smoke through it as described in the Operation Section, go outside and observe the smoke leaving the chimney.
- Then, open the stove damper and once again check the smoke leaving the chimney.

You should see significantly more smoke when the stove damper is open and exhaust does not pass through the combustor. However, be careful not to confuse smoke with steam from wet wood. Steam dissipates in the air quickly; smoke does not.

If this test indicates a problem, consider other possible factors as well, such as the weather or a change in the quality of your fuel. In warm weather, draft is weaker than it is in colder winter weather, and fires can burn sluggishly. Small, hot fires are a good solution under these conditions.

Burning "green" (insufficiently seasoned) wood will result in poorer performance than burning properly seasoned fuel. You may have to run your stove hotter (more air) to achieve acceptable performance using green or wet wood.

Also, consider any changes in your operating routine.

Once you have ruled out any other possible causes for a decline in performance, inspect and clean the combustor if necessary. Be sure to protect any surface you use for setting the stove parts aside.

## Inspecting the Combustor

Remove access door and inner fireback. Remove the catalytic combustor by lifting and sliding it towards you. (Fig. 37)

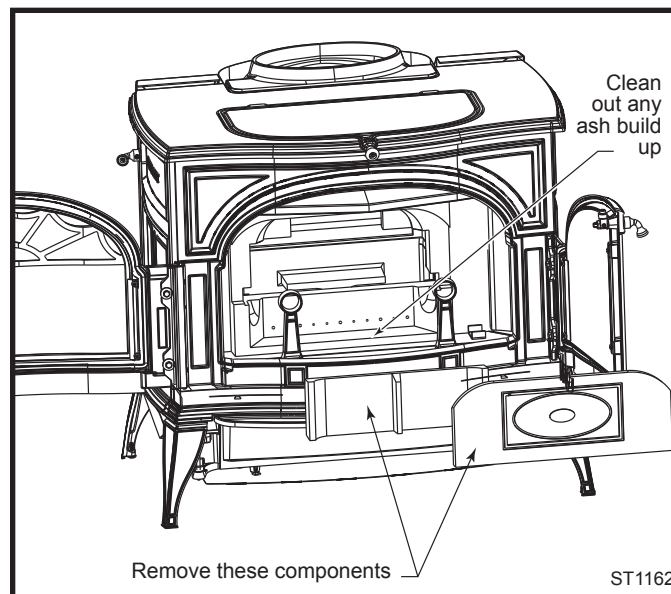


Fig. 37 Inspect and clean out ash accumulation behind the combustion system.

To assure a long life for the combustor, it is recommended to service the combustor on a regular basis based on the amount of use. This procedure takes about five (5) minutes and requires no tools except for a vacuum if cleaning is necessary.

## Cleaning the Combustor

1. Check the combustor's honeycomb-like element for a buildup of fly ash. If any is evident, take the combustor outside and clean it by blowing air gently through it. Do not push anything through the honeycomb; do not use compressed air to clear the passages. Such abrasion can scrape the thin coating of platinum (the catalyst) off the ceramic base, shortening the catalyst's life and reducing its effectiveness.
2. Inspect the element for damage or degradation. Although small hairline cracks will not affect performance, the element should be essentially intact. If the element is broken in pieces or has sections missing, it should be replaced. Call your local Vermont Castings Authorized Dealer for a replacement element.

3. If the element is in good condition and clean, re-install it in the stove and replace the refractory inner fireback and access door.

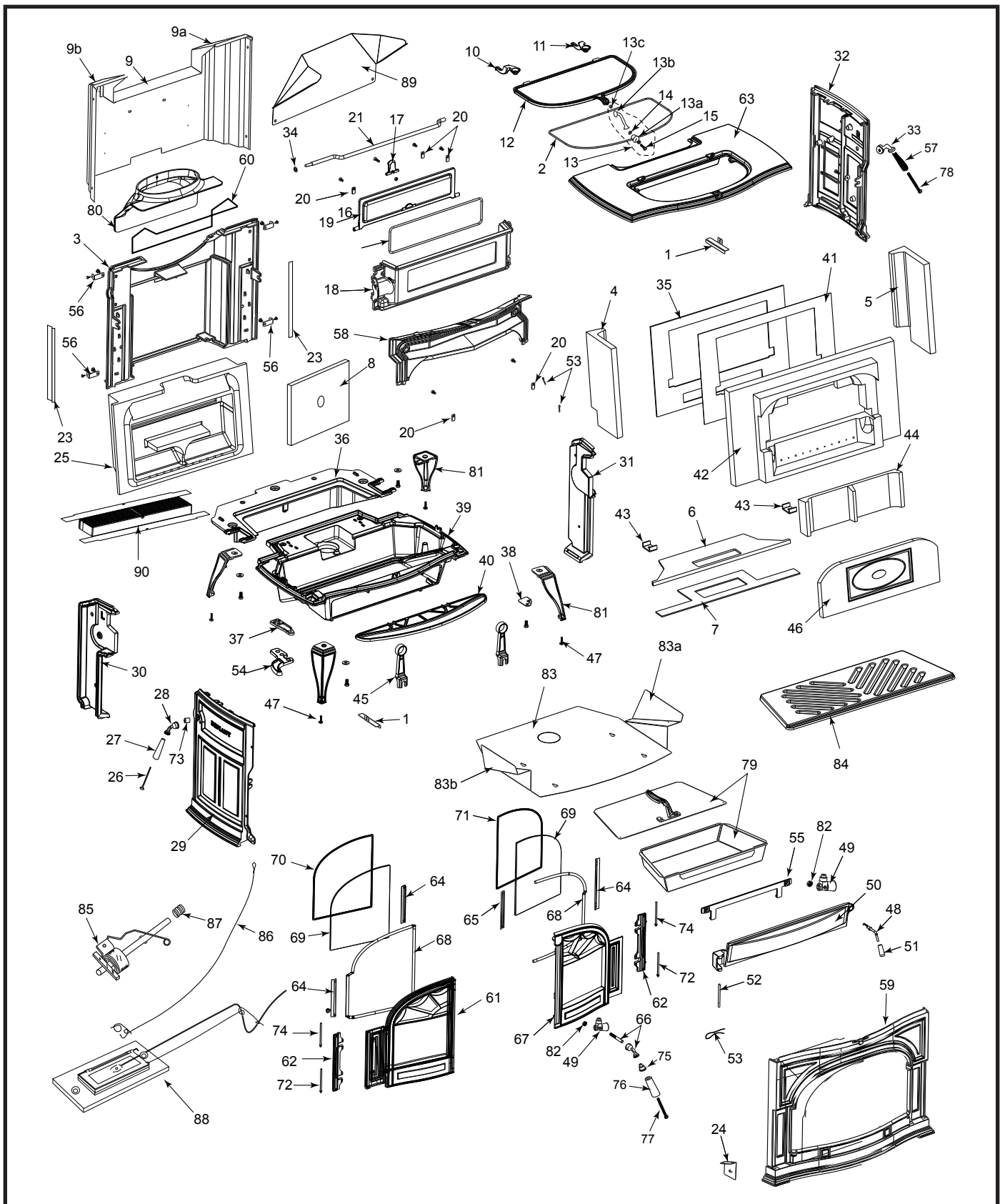
Operate the stove in your usual manner for two weeks, inspecting the chimney and the chimney connector frequently during this period.

If creosote does not build up as fast, it is likely that the performance change was caused by fly ash deposits on the catalytic element. However, continue the inspections of the chimney system for a few weeks to ensure that proper performance continues.

If you continue to find a significant creosote buildup or if you continue to see excessive smoke from the chimney, the catalytic element will need to be replaced. Contact your nearest Vermont Castings' Authorized Dealer for information about a replacement element.

**NOTE:** Use only the replacement catalyst supplied by a Vermont Castings dealer.





MHSC reserves the right to make changes in design, materials, specifications, prices and discontinue colors and products at any time, without notice.

# Defiant Noncatalytic/Catalytic Woodburning Stove

## Defiant Noncatalytic/Catalytic Woodburning Stove Model 1975CE(continued)

Item	Description	Part Number	Item Description	Part Number	
1.	Brick Support Bracket	30005279	49.	Pawl Assy 3/4 short adj	30005157
2.	Griddle Gasket	1203668	49a.	Spring Washer	63D0069
3.	Back	30005242	50.	Ashdoor	30002810
4.	Refractory Rt End	30005206	50a.	Ashdoor Gasket	1203589
5.	Refractory Lt End	30005207	51.	Ashdoor Handle (Wood)	1600663
6.	Refractory Support	30005233	52.	Ashdoor Hinge Rod	30002826
7.	Gasket, Fiber, Refractory Support	30005237	53.	Cotter Pin, Ashdoor	30001749
8.	Back Insulation Board	30005269	54.	Ashdoor Bottom Hinge Support	1300642
9.	Outer Back	30005485	55.	Ashpan Bracket	30001908
9a.	Right Air Deflector	30005489	56.	Rear Side Bracket	30002845
9b.	Left Air Deflector	30005490	57.	Thermostat Handle	1600660
10.	Left Griddle Quadrant	30002399	58.	Airwash Manifold, Frt	30005244
11.	Right Griddle Quadrant	30002401	59.	Front	See Chart Pg. 26
12.	Griddle	30005257	60.	Flue Collar Gasket	30002422
13.	Complete Griddle Handle Assy	30002775	61.	Left Door	See Chart Pg. 26
13a.	Griddle Handle Wood	1600661	62.	Door Hinge Strip	1300645
13b.	Griddle Handle CRS-BN1	30002715	63.	Top	See Chart Pg. 26
13c.	Nut Hex 1/4-20	1203210	64.	Glass Clip	30001715
14.	Griddle Handle Bushing	1201900	65.	Glass Clip (Right Door Only)	30001716
15.	Griddle Handle Bolt	1201308	66.	Front Door Handle & Shaft	30002717
16.	Damper Gasket	1203588	67.	Right Door	See Chart Pg. 26
17.	Damper Ramp	1300643	68.	Door Gasket	7000910
18.	Damper Housing	30002821	69.	Glass Gasket	1203556
19.	Damper <sup>1</sup>	30002816	70.	Left Door Glass	30005247
20.	Damper Tab <sup>1</sup>	1601488	71.	Right Door Glass	30005247
21.	Damper Rod <sup>1</sup>	1600065	72.	Lower Door Hinge Pin	30002727
23.	Gasket, Fiber Back Refractory	30005270	73.	Spacer (for Damper rod)	1201779
24.	Rheostat Bracket	30002863	74.	Upper Door Hinge Pin	30002727
25.	Refractory, Engine - E/D	30005202	75.	Complete Handle Assy	30004175
26.	Damper Handle Screw	1201310	75a.	Handle Base Stub	30002714
27.	Damper Handle	1600644	76.	Wood Handle	1600664
28.	Damper Handle w/Screw Assy	30002720	77.	Handle Bolt	1201310
29.	Left Side	See Chart Pg. 26	78.	Thermostat Handle Bolt	1201243
30.	Left Air Manifold	30002818	79.	Ash Pan Assy	30001690
31.	Right Air Manifold	30005243	80.	Flue Collar	See Chart Pg. 26
32.	Right Side	See Chart Pg. 26	81.	Leg	See Chart Pg. 26
33.	Thermostat Handle Base Assy	30002716	82.	Hex Head Jam Nut	1203290
34.	Washer Damper Rod	1202560	83.	Bottom Heat Shield	30005037
35.	Fireback Plate, S/S	30005217	83a.	Bottom Heat Shield Rt Wing	30005038
36.	Inner Bottom	30005241	83b.	Bottom Heat Shield Lt Wing	30005039
37.	Top Ashdoor Hinge	30002836	84.	Grate Bottom	30005234
38.	Door Handle Bracket	30002844	85.	Thermostat Assy.	5005470
39.	Bottom	30005240	86.	Thermostat Cable	5005471
40.	Ashlip	See Chart Pg. 26	87.	Thermostat Friction Spring	1201846
41.	Gasket, Fireback	30005209	88.	Primary Air Valve Assy.	30005275
42.	Refractory, Fireback	30005203	89.	Heat Plate Vertical Flue	30005265
43.	Retainer, Inner Cover Refractory	30005248	90.	Catalyst, Ceramic	30005353
44.	Refractory, Inner Cover	30005205			
45.	Andiron	30002827			
46.	Refractory, Access Cover	30005204			
47.	Leg Leveller	1201745			
48.	Ashdoor Handle Shaft	30005301			

## Defiant Noncatalytic/Catalytic Woodburning Stove Model 1975CE(continued)

Shell Enamel Parts - Defiant Model 1975					
Part Name	Classic	Biscuit	Bordeaux	Ebony	Brown Majolica
Top	30002834	30002874	30002915	30002894	30004837
Left Side	30002832	30002872	30002913	30002892	30004834
Right Side	30002831	30002871	30002912	30002891	30004835
Flue Collar	30001576	30002947	30002921	30002910	30004815
Front	30002830	30002873	30002914	30002893	30004836
Ashlip	30002811	30002870	30002911	30002890	30004833
Left Door	30002813	30002876	30002917	30002896	30004842
Right Door	30002812	30002875	30002919	30002895	30004841
Leg	30002835	30002877	30002918	30002897	30004843

### NOTES:

In the diagram and throughout this manual, 'left' and 'right' mean as you face the front of the stove.

When ordering parts, be sure to mention the stove's model number. When ordering external parts, be sure to specify color.

The hardware in the Defiant is in standard sizes; most bolts are 1/4" diameter by 20 threads per inch. Most hardware stores can supply replacement hardware if you specify bolt diameter, number of threads per inch and length. Fasteners inside the firebox should be replaced with stainless steel for ease of future disassembly.

# Warranty

## Limited 3 Year Warranty

MHSC warrants that this woodburning stove will be free of defects in material and workmanship for a period of three years from the date you receive it, except that the catalyst, thermostat assembly, handles, glass door panels, cement, and gasketing shall be warranted as described below.

MHSC will repair or replace, at its option, any part found to be defective upon inspection by a Vermont Castings, Authorized Dealer. The customer must return the defective part or the stove, with shipping prepaid, to the Authorized Dealer or pay for any Authorized Dealer in-home travel fees or service charges for in-home repair work. It is the dealer's option whether the repair work will be done in the customer's home or in the dealer's shop. If, upon inspection, the damage is found to be the fault of the manufacturer, repairs will be authorized at no charge to the customer for parts and/or labor.

Any woodburning stove or part thereof that is repaired or replaced during the limited warranty period will be warranted under the terms of the limited warranty for a period not to exceed the remaining term of the original limited warranty or six (6) months, whichever is longer.

## Limited 1 Year Warranty

The following parts of the woodburning stove are warranted to be free of defects in material and workmanship for a period of one year from the date you receive it: The thermostat assembly, handles, glass door panels, cement, and gasketing. Any of these items found to be defective will be repaired or replaced at no charge, upon the return of the part with postage prepaid to a Vermont Castings Authorized Dealer. Any part repaired or replaced during the limited warranty period will be warranted under the terms of the limited warranty for a period not to exceed the remaining term of the original limited warranty or six (6) months, whichever is longer.

## Limited Catalyst Warranty

The catalyst will be warranted for a six year period as follows: If the original catalyst or a replacement catalyst proves defective or ceases to maintain 70% of its particulate emission reduction activity (as measured by an approved testing procedure) within 24 months from the date the stove is received, the catalyst itself will be replaced free.

From 25 - 72 months a pro-rated credit will be allowed against a replacement catalyst and the cost of labor necessary for its installation at the time of replacement.

For stove purchases made after June 30, 1990, a third year (25 - 36 months) of no charge replacement will be made when combustor failure is due to thermal degradation of the substrate (crumbling of ceramic material). The customer must pay for any in-home travel fees, service charges, or transportation costs for returning the stove to the Authorized Dealer.

Amount of Time Since Purchase	Credit Towards Replacement Cost
0 - 24 months	100%
25 - 36 months	50 %
37 - 48 months	30%
49 - 60 months	20%
61 - 72 months	10%

Any replacement catalyst will be warranted under the terms of the catalyst warranty for the remaining term of the original warranty. The purchaser must provide the following information in order to receive a replacement catalyst under the terms of this limited warranty:

1. Name, address and telephone number.
2. Proof of original purchase date.
3. Date of failure of catalyst.
4. Any relevant information or circumstances regarding determination of failure.
5. In addition, the owner must return the failed catalyst.

## Exclusions & Limitations

1. This warranty is transferable; however, proof of original retail purchase is required.
2. This warranty does not cover misuse of the stove. Misuse includes overfiring which will result if the stove is used in such a manner as to cause one or more of the plates to glow red. Overfiring can be identified later by warped plates and areas where the paint pigment has burned off. Overfiring in enamel fireplaces is identified by bubbling, cracking, chipping and discoloration of the porcelain enamel finish. MHSC offers no warranty on chipping of enamel surfaces. Inspect your woodburning stove prior to accepting it for any damage to the enamel.
3. This warranty does not cover misuse of the stove as described in the Owner's Guide, nor does it cover an stove which has been modified unless authorized by a MHSC representative in writing. This warranty does not cover damage to the stove caused by burning salt saturated wood, chemically treated wood, or any fuel not recommended in the Owner's Guide.
4. This warranty does not cover a stove repaired by someone other than a Vermont Castings Authorized Dealer.
5. Damage to the unit while in transit is not covered by this warranty but is subject to a claim against the common carrier. Contact Vermont Castings Authorized Dealer from whom you purchased your stove or MHSC if the purchase was direct. (Do not operate the stove as this may negate the ability to process the claim with the carrier.)
6. Claims are not valid where the installation does not conform to local building and fire codes or, in their absence, to the recommendations in our Owner's Guide.
7. The salt air environment of coastal areas, or a high-humidity environment, can be corrosive to the porcelain enamel finish. These conditions can cause rusting of the cast iron beneath the porcelain enamel finish, which will cause the porcelain enamel finish to flake off. This warranty does not cover damage caused by a salt air or high-humidity environment.
8. MHSC shall have no obligation to enhance or update any unit once manufactured.

IN NO EVENT SHALL MHSC BE LIABLE FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES. ALL IMPLIED WARRANTIES, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, ARE LIMITED TO THE DURATION OF THIS WRITTEN WARRANTY. THIS WARRANTY SUPERCEDES ALL OTHER ORAL OR WRITTEN WARRANTIES.

Some states do not allow the exclusion or limitations of incidental and consequential damages or limitations on how long an implied warranty lasts, so the above limitations may not apply to you. This warranty gives you specific rights and you may have other rights which vary from state to state.

## How to Obtain Service

If a defect is noted within the warranty period, the customer should contact a Vermont Castings Authorized Dealer or MHSC if the purchase was direct with the following information:

1. Name, address, and telephone number of the purchaser.
2. Date of purchase.
3. Serial number from the label on the back.
4. Nature of the defect or damage.
5. Any relevant information or circumstances, e.g., installation, mode of operation when defect was noted.

A warranty claim will then start in process. MHSC reserves the right to withhold final approval of a warranty claim pending a visual inspection of the defect by authorized representatives.

**MHSC**

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